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NUMBER 9

THE AGRICULTURAL STUDENT

OHIO STATE UNIVERSITY, COLUMBUS, OHIO



MAY 1916

ANIMAL HUSBANDRY NUMBER

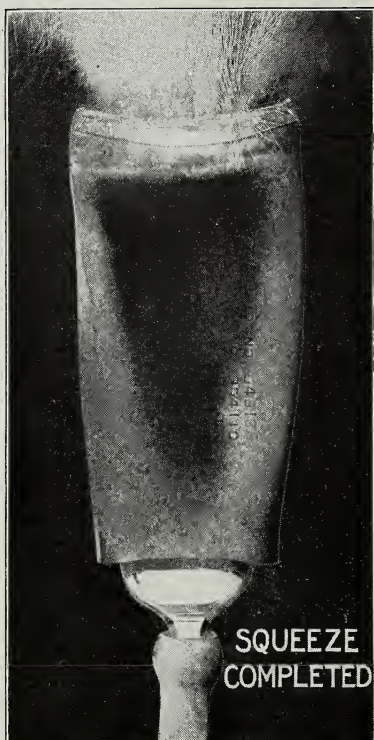
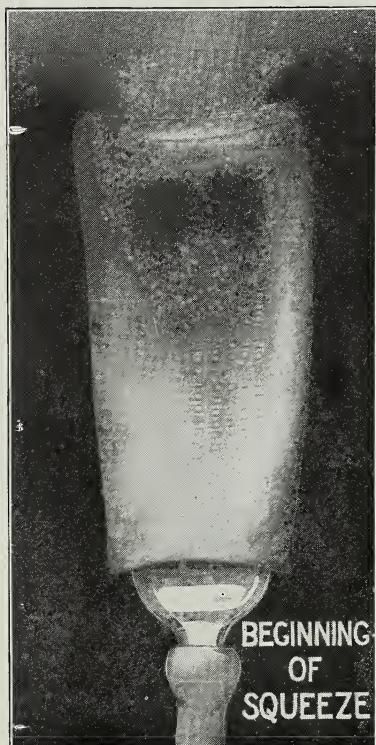
LIVESTOCK MARKETING PROBLEMS	-	<i>Gilbert Gusler</i>
EARLY ANIMAL HUSBANDRY INSTRUCTION	-	<i>C. S. Plumb</i>
TENNESSEE PASTIMES AND REMINISCENCES	-	<i>"Pop" Geers</i>
DRAFT HORSE FUTURITIES	- - - -	<i>Donald J. Kays</i>
ADVANCED REGISTER WORK AND BREEDING	- - - - -	<i>W. H. Caldwell</i>
SWINE PRODUCTION IN OHIO	- - -	<i>Joel S. Coffey</i>
MERINO DEVELOPMENTS IN OHIO	-	<i>Clifford T. Conklin</i>
MILKING SHORTHORNS IN AMERICA	-	<i>R. M. Dodington</i>
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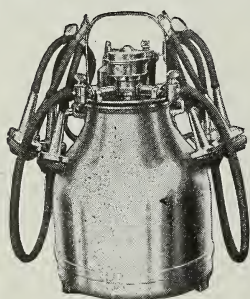
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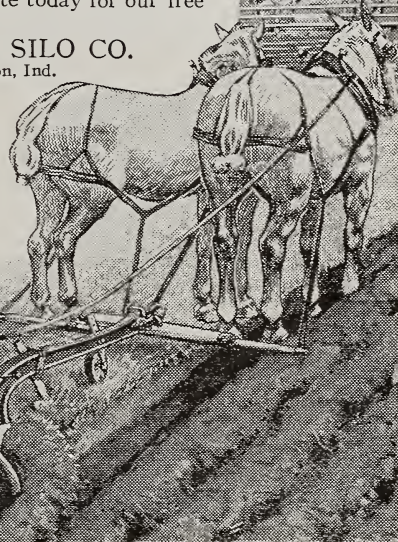
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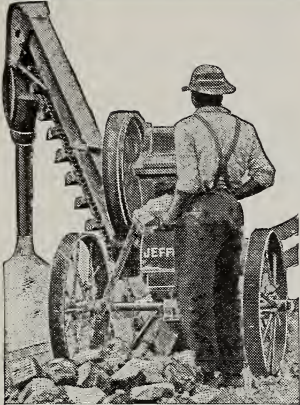
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CONTENTS

PROBLEMS IN THE MARKETING OF LIVESTOCK—	
Gilbert Gusler	607
DEVELOPMENTS IN ANIMAL-HUSBANDRY INSTRUCTION—	
Charles S. Plumb.....	612
TENNESSEE PASTIMES AND TURF REMINISCENCES—	
Ed ("Pop") Geers.....	616
OPPORTUNITIES PRESENTED IN THE FUTURITY SHOWS—	
Donald J. Kays.....	623
RELATION OF ADVANCED REGISTER WORK TO BREEDING—	
W. H. Caldwell.....	625
DEVELOPMENT OF SWINE PRODUCTION IN OHIO—	
Joel S. Coffey.....	631
EDITORIALS	635
HOW OHIO DEVELOPED THE EARLY MERINO FLOCKS—	
Clifford T. Conklin.....	638
POSITION OF MILKING SHORTHORNS IN AMERICA—	
R. M. Dodington.....	644
<u>FIFTH ANNUAL OHIO STATE HORSE SHOW—</u>	
Clifford T. Conklin.....	646
ALUMNI NOTES	648
NEWS NOTES.....	651



Holstein Calves in a Summer Pasture Lot.

THE AGRICULTURAL STUDENT

Vol. XXII.

OHIO STATE UNIVERSITY, COLUMBUS, MAY, 1916

No. 9

PROBLEMS IN THE MARKETING OF LIVESTOCK

**How the Consumer and Producer Are Affected by the Distributing System;
Methods of Disposal and Their Relations to the Meat Supply
and the Necessity of Studying Selling Influences**

PROF. GILBERT GUSLER, University of Illinois, Urbana, Ill.

PROBABLY no topic in the livestock field is more lively today than that of marketing. A storm of protest against disadvantageous marketing conditions is sweeping the country and finding frequent printed and spoken expression. A congressional inquiry instigated by producers, into the behavior of meat packers is now in progress. Undoubtedly the public is aroused.

Properly considered, at least a part of the marketing operation is a form of production and therefore a subject for the thought of the farmer. But since the farmer now receives 91 to 93 per cent of the sum paid by the packer for livestock, various marketing costs absorbing the remainder, the real problem is the broad, one of continuously remunerative prices at the market. The total importance of livestock marketing to the farmer is seen in clearer light if we realize that of the corn, oats, barley, hay and pasture crops, 85.6, 72, 47, 83 and 100 per cents, respectively, are utilized by livestock. What becomes of the rest of the hay is a matter for our own conjectures and suspicions.

The consumer likewise is interested, for livestock products including those from the dairy and poultry yard make up 55 to 57 per cent of his total expenses for food and 40 to 45 cents of the dollar he spends for such material is

assessed after it leaves the producer. It is important to producers and consumers alike that there should be no undue slack at any stage of the process of transfer from the former to the latter.

There is a story afloat of a man who had five sons and a gristmill. A farmer brought wheat to be ground and according to custom the miller was to take toll from the grain for his pay. When the farmer came for the flour the miller called to his eldest son and asked if he had tolled that man's wheat. The son responded affirmatively. He called another son, put the same question and received the same reply. He asked the question of the others only to receive the same answer from each one. Finally he turned to the farmer seemingly in disgust and said: "They're all blank liars. I tolled that wheat myself."

Many hands taking toll or assessing charges unjustly is the popular conception of the whole marketing process. Undoubtedly it contains an element of truth with respect to some kinds of products. Economists take the view that within limits, numerous persons taking a hand in the operation of marketing are desirable on the ground of specialization and division of labor and that the main features of the marketing system are justifiable. Whatever notions we may have of the

benevolence or malevolence of the meat packers, or of the evils in the marketing system, and it is not without flaws, it is impossible not to feel after a study of its phases, that the whole mechanism by which animals are slaughtered and their carcasses ripened, distributed and vended is a marvel of business administration. There are not many hands taking toll, although those may take toll a-plenty. Some of the methods and devices would be initiated only under the stress of severe competition or a very diligent pursuit of the profitable dollar. It is not necessary to palliate all its faults or perversions, but one should recognize its excellencies.

Six methods are open to the farmer who has fat steers, hogs, or lambs to sell; (1) he may kill his own stock and sell it direct to consumers or to country retail stores; (2) he may sell to local butchers; (3) he may sell to local stock shippers; (4) he can ship his own stock to a central market; (5) he can ship with his neighbors through a co-operative shipping association, or (6) he may sell to a buyer for a packer who will consign direct to his firm.

The first two methods involve local marketing and while increasing in importance, are not feasible in practice for everyone. The first is largely in use in the south today, and the second is in greater or less use everywhere. The other methods involve the central markets which furnish the real market problem. Not only do the central markets receive more than one-half the cattle, two-thirds of the swine and five-sixths of the sheep, but local marketing is always based on central market prices. Whatever affects the latter will influence the former.

It is hard to realize the rapid growth of live stock markets. The day when the old saying "Three old women and a goose make a market" would hold as

a typical market description is far behind us. In 1870 the Commissioner of Agriculture included in his report a discussion of the problem established by the fact that there were millions of people along the Atlantic seaboard who could not be fed meat by the neighboring states but who must be supplied by transportation and three-fourths of the amount required must be carried before slaughter from 1000 to 1200 miles. At that time Chicago was the leading gathering point and the largest hog packing center but only a few cattle and sheep were slaughtered there. The report suggested that a special prize of honor should be given to the inventor who would perfect and carry into practice the best method for transporting meat over long distances and at all seasons.

Whether rewarded in that way or not the invention was soon forthcoming and the centralization of the slaughtering business at large western and middle western gathering points followed. A measure of the growth made is furnished by the fact that in 1910 the packing industry led all others in the value of its output, exceeding by a material margin the enormously important steel industry. It is said that one of the large packing firms originates directly or indirectly each day, 1200 carloads of freight.

As was stated before the great marketing problem from the standpoint of the farmer is the problem of stable and remunerative prices. This is not a new idea. Every marketing discussion one reads or hears will convey the same thought. It is a large problem indeed for one of the great deterrants to expansion of the live stock industry is the instability of the market. There will be no increased meat supply until that evil is corrected.

There is no justification for the fre-

quent long periods of loss from feeding cattle and hogs, shown upon the charts now being published in 'Wallace's Farmer. It is not to be expected that production will long continue at a loss. On the other hand if livestock is not fed a big decrease in the value of grain now produced is sure to follow.

Nor is there justification for the large fluctuations in price within short periods of time, which now occur. A

vail. However, conditions are such in the livestock trade as to permit obstruction and those possessing the power to obstruct are able to profit financially by it.

Probably at the core of the evil of unsatisfactory prices is the extreme concentration of buying power with the consequent possibility of artificially influencing the market. Meat packing, the nations largest industry measured



Feeding cattle in an open lot. A cornbelt scene.

large run at Chicago causes a break in prices there, and the country over, which is likely to be out of proportion to the change in the actual or potential supply which such a run might indicate, especially in view of the relative constancy of demand and the relative imperishability of meat in storage.

It is orthodox to say that demand and supply control price. The principal holds true when the tide of these two factors can flow freely, when the legitimate elements of commerce pre-

by the value of the annual output, is overwhelmingly dominated by five or six large firms. They profit by the unstable condition of the market which enables them to buy the bulk of their purchases on breaks. The law of supply and demand involves lower prices for larger numbers but the trouble is that an oversupply for a day or two results in an unjustifiable decline from which the market does not immediately recover and the reduction never reaches the consumer.

Concentration makes possible also maneuvering and tactical methods of many kinds to obtain the advantage in marketing. Thus having buyers at many yards it is possible to divert shipments in such a way as to affect prices at Chicago, which is commonly regarded as the price setter. Direct buying by packers in the country, an alleged form of co-operative virtue, undoubtedly has for its purpose the shifting of the level of prices at price setting points. Another measure employed by packers consists of keeping their buyers off the market until late in the morning,

As the problem is complex so must the remedy be. Certain elements, however, stand out clearly. First there should be available to producer and packer alike, more complete and reliable information as to the supply of fat and their stock, its distribution and the supply of accumulated meat stocks, in short upon all factors which may influence the market.

Another thing of great importance is a change of attitude on the part of the packer. He should be the producer's friend, but the two are constantly at sword's points. One man who is fa-



A practical method of feeding beef cattle. Sheds open to the South.

discouraging the sellers and preventing satisfactory fills. The ownership of stock yards and of stock yard papers issuing quotations and the extensive loaning of funds by packers to live stock producers, all tend to weaken the grasp of the producer in the struggle.

Another factor which abets the packers' moves is the necessarily periodic nature of the market for certain classes of stock and it is at least a moot question whether the uneven distribution of receipts through the week does not reduce the strength of the selling side and add power to the price hammering arm of the buying side.

miliar with the whole situation says he sees no relief save in a benevolent tyranny on the part of the packer. A prominent commission man speaking at a convention of packers said, "The 'big four'" (referring to the four largest packing concerns), will dominate the industry for some years to come, and among them must be found one so big and broad that he can act or by his action, become a governor or sustaining power for the equalizing or stabilizing of values."

This should not be construed as an interference with the law of supply and demand. It only means fair play, fos-

tering instead of killing the hen that lays the golden egg. The consumer need not be subject to extortion to accomplish it. More stable livestock prices probably would not affect the consumer at all.

The producer can improve the situation in part by his own efforts. It takes but a short time to market the product of the feedlot and that fact blunts the former to its importance. In fact fattening good steers is easy compared to selling them well. The average farmer may follow quotations when

and then loses his price on the buyer's bid or takes the advice of the commission firm or some one else. He takes courage for future production or loses it according to financial results as measured by his expectations.

He must instead become a student of the market and the factors that influence it. It is plain to all that the time cattle go on feed will determine the period of the year in which they will be marketed. It is important to the individual that his market be a favorable one. Likewise the number of hogs



Livestock production equipment as found in the corn belt

about ready to sell or he may not. He may not understand the terms of the classification upon which quotations are given. He may not follow them closely enough to avoid being beaten, due to a recent upturn in the market. Because the average farmer follows the quotations so inconstantly he knows little of the nature or force of the factors that affect his market. He comes blindly to the time of marketing,

during a given period will have something to do with the supply and so with prices when those hogs are ready for market.

Finally it is through organization of producers that those evils of uneven receipts through the week, congestion due to marketing periodic classes and country buying by packers can be corrected.

DEVELOPMENTS IN ANIMAL HUSBANDRY INSTRUCTION

How Livestock Ideas Were Introduced Into Agricultural Colleges

PROF. CHARLES S. PLUMB, Ohio State University

IN 1878 the writer enrolled as a student in the Massachusetts Agricultural College, one of the oldest institutions of its kind in America. During my period of four years at the college, there were two men engaged in teaching agriculture or co-related subjects, a professor of agriculture and a



**Captain S. Robinson's Hereford Bull,
Gainsborough.**

professor of horticulture. Under the general subject of agriculture we received instruction, mainly through lectures, on various topics, especially soils and crops, drainage and manures. This agricultural instruction amounted to two hours a week for the freshmen, sophomore and one term for the junior years. During one term of the sophomore year the hours were increased from two to three per week. We had one term of "stock and dairy farming" of two hours per week, when we were given instruction relative to breeding, feeding, and the breeds. We also had a special course of lectures on veterinary topics of two hours each. There was no such thing really, as the present day course in animal husbandry.

At the Michigan Agricultural College, the oldest American institution of its kind, the agricultural instruction

was also quite general in character, though the senior class in "practical agriculture," received instruction on the principles of stock breeding, and feeding animals, Miles' "Book on stock feeding," and Armby's "Manual of Cattle Feeding" being reference books for this course. The Ontario Agricultural College, however, in 1879, had a course on "breeding and feeding animals," which was required in the freshman year. About this time Professor Brown of that college began to give instruction along lines not attempted in the states, and comparable with some of the present day courses in breeds of livestock; and in judging livestock.

The following from the 1882 catalogue of the college, is evidence of what I believe to be the first attempt made in America to teach animal-husbandry subjects in a systematic manner, accompanied by laboratory practice. The college organization consisted of five departments, one of which was devoted to livestock: "In this department, the



Master Generous.

first year students devoted 3 hours a week to the study of the characteristic points and peculiarities of the leading breeds of sheep, pigs, and horses, while the second year men spent 1 hour a

week in handling, judging, and comparing the different breeds and varieties of sheep and cattle." The method of instruction was the same as usual and may be described as follows:—"A specimen of some kind, say a Short-horn steer is brought into a lecture room, which is so arranged with gal-leried seats that every student, while in his place taking notes, has a full view of the lecturer and all his movements. The different parts of the animal are first pointed out and named, as the brisket, crops, loins, and twist. After

ing, hardiness, and other properties. Much the same course is pursued with the different breeds of sheep. Cots-wolds, Leicesters, Southdowns, Ox-ford Downs, Shropshires, and Merinos are examined in the class room, and compared with one another as regards carcass, constitution, wool, mutton, feeding, hardiness, etc. Thus the in-struction in this department is made in the strictest sense definite and practi-cal." From October 1, to December 22, 1882, the college gave special courses to livestock classes, involving work



Animal Husbandry students now have the advantage of studying excellent types.

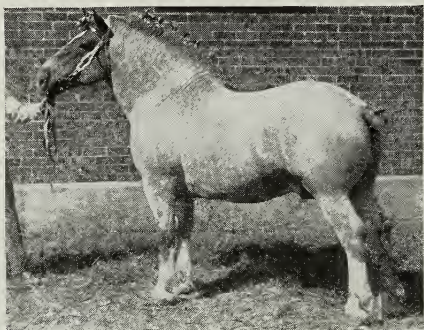
this has been several times repeated, the students are called on to point out and name the several parts in the pres-ence of their classmates. The lecturer then criticises the animal, indicating the strong and weak points, and giving his estimate of it as a whole. After-wards several animals of different breeds are brought in together, and he proceeds to describe and illustrate what are considered the good points of an animal for beef and for milk, comparing and contrasting Shorthorns, Herefords, Aberdeens, Polls, Devons, Galloways, Ayrshires, and Jerseys—breed with breed in regard to shape of frame, quality of flesh, feeding, beefing, milk-

from 7:00 A. M., to 1:30 P. M., for 6 days in the week.

As a result of the training given at the Ontario College, that institution was the first to graduate men who were qualified to assume positions of re-sponsibility as teachers of animal hus-bandry. Numerous colleges in the United States, in establishing depart-ments in this branch of education, turned to Ontario for instructors, and as a result graduates of that institution played an important part in the early work of organizing animal husbandry courses, in some of our best known colleges.

The introduction of distinctive animal

husbandry courses in the United States, occurred in 1890 at Wisconsin University, when the late John A. Craig was made professor of animal husbandry at that institution. He was a graduate of the Ontario Agricultural College, and so brought to Wisconsin



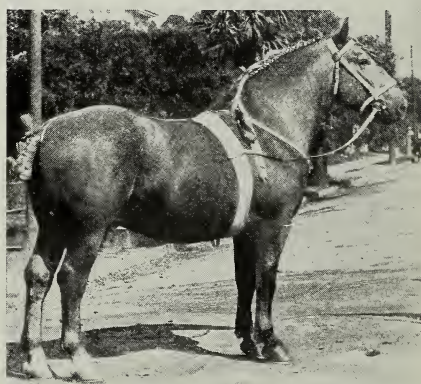
Grand champion Belgian stallion Farceur, at the Minnesota and Iowa Fairs.

an acquaintance with the best methods of animal husbandry instruction known up to that date. Craig, however, was a teacher of rare ability, and he not only introduced Canadian methods, but greatly improved them. He was the first to make use of the score card for class room work, and did much to make popular courses in judging, and breeding, as well as other phases of animal husbandry instruction. Other colleges were quick to recognize the pedagogical attractiveness and value of the work Professor Craig was doing. Courses relative to breeding, feeding, the breeds, and judging, paved the way to departmental organization in animal husbandry, and instructors in these subjects were in demand. Changes in methods of instruction, the application of laboratory methods, and the contact with living animals in the class room, greatly increased the enrollment of students in the colleges, and popularized animal husbandry courses.

The judging of animals in the class room, as introduced by Craig, proved

to be a popular phase of education. In Wisconsin this matter was greatly stimulated by judging contests between students. I think it was in 1892 that Professor Craig first introduced these contests.

Robert B. Ogilvie, then a prominent Clydesdale breeder at Madison, offered prizes to the contestants, and considerable interest was awakened, and the Wisconsin livestock judging contests, were widely advertised. As might have been expected other colleges became interested in the judging contest idea, and in 1898, through the leadership of Professor Craig, the first inter-collegiate contest took place, it being held at Omaha, Nebraska, in connection with the Trans-Mississippi Exposition. As I now recall, three colleges participated in this contest, Wisconsin, Iowa and Minnesota. In 1900, a contest was held at the first International Livestock Exposition, at Chicago, on which occasion a team from Illinois University, coached

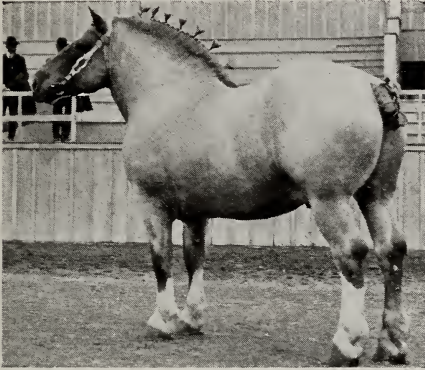


Mouton, bred by E. B. White, Leesburg, Va. Champion American bred Percheron stallion.

by Professor W. J. Kennedy, a recent graduate of Ontario, won the highest honors and the Spoor Trophy of a bronze bull. The judging contests at the first two Internationals, were in charge of a committee of which the

writer was a member, consisting of animal husbandry instructors from different colleges.

An important feature of the educational work of the colleges has been

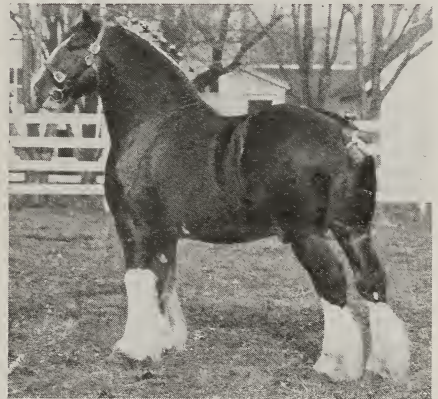


Farceur, probably the greatest Belgian in the United States. Champion at Panama-Pacific Exposition.

that of providing livestock suited to the class room. The Canadian government early furnished funds for purchasing high class animals for that institution. The organization of animal husbandry departments in our state colleges, resulted in providing appropriations and establishing herds of merit as very essential features of equipment. The colleges were invited to exhibit livestock at the International, and from the first, special prizes of importance have been offered for college competition alone. Clay, Robinson & Company, prominent livestock commission men, much interested in agricultural education, have each year given \$1000 for college competition at the International. Many fine animals have been fitted and exhibited at this show, and a number of grand-championships have been won by

the colleges. Thousands of livestock students have attended the past Internationals, and have returned to their respective colleges, enthusiastic advocates of improved livestock and better farming.

The present day students in animal husbandry have many opportunities not enjoyed by those of 15 or 20 years ago. Judging pavilions have been provided, herds and flocks of the best breeding established, important additions made to courses of instruction, animal-husbandry literature has been greatly improved and extended, and the fields of specialization for the student made much more attractive. The future without doubt will see a continuation of this educational development, and one may well feel assured that each generation



The Truman Pioneer Stud Farms' Boro Blusterer, grand champion Shire, believed to be the best Shire stallion shown in America in twenty years.

will take a long step forward in the march of progress. Without doubt, Ohio State University will play her part in this onward movement.

TENNESSEE PASTIMES AND TURF REMINISCENCES

Stories of Little Brown Jug and Hal Pointer's Supremacy

ED (POP) GEERS, Memphis, Tennessee

PEOPLE residing in the North who have not visited or become acquainted with the methods peculiar to the people of Tennessee, can hardly appreciate some of the pastimes in which those people indulge, but which has been the very beginning of the pleasure horse development. The first Monday of every month in the year has been a holiday, nearly if not quite, ever since the state was settled, and on this day nearly all the people in the county go to the county seat and spend the day. On these days every one who has horses to sell or trade, cattle, pigs, machinery or produce to sell, will bring their stock and property to the county seat to be seen, exhibited, sold or traded, and it is not an uncommon thing for several thousand people to congregate there on these occasions, and amusing incidents are of frequent occurrence.

Not many years ago, on one of these occasions at Pulaski, Giles County, a man appeared seated in a wagon, having in front of him a glass churn, three or four feet high, filled about one-half or two-thirds full of cream. He was seated in a large, easy rocking chair, reading a paper and smoking a pipe. There was a rod running from the churn to the rocking chair and so adjusted that every time he rocked the dasher of the churn would rise up and down and so he continued to rock, smoke and read, occasionally looking from behind his paper to see if the butter had come; many a boy, as he watched this process of buttermaking remembered how his back and arms ached when pursuing the methods of his father, voted this the greatest invention of the age, and that the man who invented that churn ought

to have cold watermelon the rest of his days.

Another feature of these days is the horse trading, and in some counties it is known as "Jockey Day," and every one who has a horse he desires to trade or sell will bring him in and put him in a yard known as "Jockey Yard," and it is not uncommon to see several hundred horses of all kinds and descriptions in one of these yards, and before night they will generally be disposed of. If any are left after the buyers and traders are through, an auctioneer is brought in, and the balance are sold under the hammer. When night comes every one who has "swapped" horses thinks he has made a small fortune by his cleverness in outwitting the man at the other end of the trade, but I imagine they generally come out about the same as the two men of whom a story is told, who went into the woods in the fall of the year to chop wood; one of them had a watch and the other a fiddle. The first evening after they arrived they traded even, and each thought he had made several dollars by the transaction; and as this business seemed to be much easier and more lucrative than chopping wood, they did nothing all winter but trade the watch and fiddle back and forth; and when spring came each claimed to have made a good winter's work, each having the same property he had when winter began and not a dollar passed between them.

In the spring months stallions owned in the county, and frequently those of an outside county, are brought together on these days for the inspection of farmers and breeders of the vicinity, and as the saddle and pacing gaits are the ones

generally desired in the country districts, the horses are shown under saddle; first showing saddle gaits, such as the fox trot, running walk, single foot and canter, and then they will go up the road a few hundred yards and pace down to a given point, and sometimes these horses will show a great turn of speed. I think one of the best exhibitions of riding and speeding under saddle I ever remember to have witnessed was at Lebanon, when I was a boy. On one of these days in the spring of the year there were a number of stallions exhibited, among them being a gray or white pacing stallion, called Mountain Slasher, a horse well known to Tennesseans. This horse was shown by William Goldston, one of the best riders and horsemen in the state. After the horses had shown their saddle gaits they all went up the road several hundred yards to pace down. When they were ready, Goldston placed the riding whip in his mouth, dropped the bridle rein on Slasher's neck, placed his hands on his hips, and, with arms akimbo started with the others; on they came, Golston sitting as erect as a piece of statuary, and every little while sticking the spurs into the sides of Slasher, who with the reins lying loose on his neck, and without anything to steady him except his inherent pacing instinct, regardless of stones and the rough uneven surface, never broke his true even pace, and clearly outpaced all his competitors and carried off the laurels of the day. I mention this incident mainly to show how intensely the pacing instinct is instilled in the pacing horses of Tennessee, and how difficult it has been to convert them to trotting. From the time the colt is old enough to stand he knows nothing but pace, and I have seen dogs set upon colts a year or two old and they would race across the fields and never break the pacing gait.

In that portion of the State known as Middle Tennessee, and in the counties where the breeding of horses is carried on to any considerable extent, the outcome of holding colt shows has been observed for many years. These colt shows are generally held in August and concluded before the beginning of the county fairs, which commence early in September and a large part of October. They are held in or near the small villages and are looked forward to by the farming community as one of the chief events of the year. The "ring" is generally made in a shady woodland, and when the morning of the show arrives a sight is presented to one not accustomed to it as picturesque as it is novel. Along the road leading to the ring will come the owner of a stallion leading or riding the pride of his life, all bedecked with ribbons and groomed so slick as to raise a suspicion that bears grease has been used in his final preparation. Next will appear a farmer leading a mare, beside which is her offspring several months old, and often the colt will be wearing a fancy biting harness, in which it seems perfectly at home.

But more curious than all these is the old colored mammy mounted on the old reliable saddle mare with one child astride in front and several mounted in the same way behind, so that this "beast of burden" is loaded from her shoulder to her tail and traveling in this manner most of the community gather near where the exercises are to be held. These shows commence in the morning and frequently last all day, and no one ever need be afraid that he will suffer from hunger in attending a show of this character, as the good and thoughtful housewives of the exhibitors will prepare a spread large enough to feed an army. Several thousand people often attend. Classes

are made and premiums offered for pretty much everything including stallions, brood mares, sucklings, yearlings, two and three year old colts, etc. When the master of ceremonies is ready, the judges enter the ring and class after class is brought in and exhibited, and



The Intelligencer

it will not surprise a novice to see how fast some of these colts can pace. Seated upon a running or pacing horse the attendant will take the reins attached to the colt's biting harness and away they will fly, the colt pacing up to the saddler's head. This manner of exhibiting speed is observed with the different colt classes, and when everything any one desires to enter has been exhibited and passed upon by the judges, the crowd disperses to assemble again in a few days at some neighboring village, where the same ceremony is repeated, and at these miniature fairs is commenced the career of some of the great horses the State sends out to the racing world.

* * *

Little Brown Jug

The first get of Tom Hal, the head of the Hal family of pacers, to attract attention of the country was Little Brown Jug, and his history is so unique I think

it well deserves to be given. In 1874, O. N. Fry, of Mooresville, Tenn., was the owner of Gibson's Tom Hal, who was making the season at \$5 by the insurance, and if, when the colt was old enough to wean, it did not show the saddle gaits no fee whatever was charged. A neighbor of Mr. Fry then owned a mare named Lizzie, by John Netherland, a racing bred horse. Mr. Fry happened to meet the owner of Lizzie one day and suggested to him the advisability of breeding Lizzie to Tom Hal; but the owner of Lizzie demurred, saying he could raise a mule, and that when the mule was a year old he could sell it for \$50, which was much better than he could do raising colts. Finally, Mr. Fry proposed that if he would breed to Tom Hal he would pay him \$50 for the colt when it was a year old if sound and right.

This proposition was accepted, and one day the next year the man appeared at Fry's place leading a colt so thin



Eric Sensation

that he would hardly make a shadow, and in addition to apparently being half starved, he was covered with lice, which had eaten his mane and tail and nearly finished what little vitality was in his body. This colt was Little Brown Jug, which this man had brought to Fry,

pursuant to their contract, as he claimed and demanded the \$50. When Fry saw the colt he refused to receive him, and told the man he did not want such a looking colt upon his place. The man said he had no money and had relied upon the promised \$50 to buy neces-



Astral King, winner of the \$1,000 saddle stake in 1912

saries for his family, and finally Fry, out of sympathy, but under protest, took the colt and paid the \$50. After a thorough cleansing the colt was given plenty to eat and improved rapidly.

The next year Fry leased a portion of his farm to a colored man to work on shares, who had no horse and in the spring that Little Brown Jug was two years old he was sold by Fry to this colored man for \$75. The colored man broke him to harness and used him to plow and put in his crops; and in addition to this work every Sunday his wife and two or three of his children would get upon the back of the colt and ride several miles to church. In addition to all this, the colored man's son had a sweetheart who lived two or three miles from his home, and he would take the colt, after having worked him all day, and go across fields to the home of his sweetheart, hitch him outdoors, where

he would stand with nothing to eat, and often in storms until the early hours of the morning. This performance was repeated several times a week during the entire season. When fall came the colt was in a pitiable condition, and showed his hard usage plainly. That fall the wife of the colored man was taken sick, and after attending her for some time, the doctor refused to come any more unless Fry would become responsible for his bill, which he finally consented to do, and the doctor attended her until she died.

The doctor's bill was \$60, and seeing there was no other way out of the difficulty the colored man gave the colt to Fry and he paid the doctor the \$60. At that time the colt could not be sold for \$60, and Fry only allowed that amount to him because there was nothing else for him to do. The colt was then turned out and with rest and plenty of feed soon commenced to improve, and in the summer and fall of 1878, when the colt



Rex Edmonston

was three years old Fry rode him to the colt shows and fair and soon discovered that he could pace fast, and the next year placed him in the hands of a trainer who trained him on a half-mile track near Lewisburg, Tenn. The rapidity with which he improved was

simply astonishing, and in a few weeks that half starved and much abused colt became one of the speediest horses that had up to that time ever been seen in harness. I saw him at Nashville the following spring, and gave him a workout, and I do not think I was ever behind a stronger, easier going horse. His conformation was the most remarkable of any horse ever seen upon the turf. He was only about 15 hands high, a rich brown in color, his slim neck, small ears, large expressive eyes, and finely molded head, clearly showed the thoroughbred blood which he had inherited. But the most remarkable thing about him was his abnormal muscular development. His forelegs were large, flat and well tapered, and his hind quarters were so immense as to make them look like a deformity. What he was as a race horse we know but what he might have been is a matter of conjecture.

* * *

Hal Pointer

Everything considered, Hal Pointer was the greatest race horse I had ever driven. I always drove him with an open bridle, and as soon as he had had a little experience he seemed to know how to rate his speed just as well as I did; and also that the purse belonged to the horse that first passed under the wire rather than the one that reached the quarter or half-mile pole in advance of the field, and when in the lead he would watch the attempts of a rival to pass him with the same degree of interest as his driver, and was ever on the alert to prevent another horse from getting dangerously close. This characteristic was well illustrated in the race at Terre Haute, in the fall of 1889, in which the pacer B. B. who had been defeating everything he had met that season ran against him. Many predicted that when these two horses met, Hal Pointer would taste the bitter

pangs of defeat. In one of the heats of that race I had passed B. B. in the stretch and, expecting him to make a rush near the wire, was watching him and so was Pointer; and after the race was over the driver of B. B. said he "could stand it to have me watching him, but when he saw Hal Pointer with one ear laid down also watching him he saw it was of no use and that he could not steal a march on him, and so abandoned the attempt." He retired that fall with a record of 2.09 3-4, which made him a candidate for the free-for-all class the next season. A long run bare-footed that winter cured the soreness in his feet which had developed the year before and he was in good condition the next spring to commence his training. I anticipated a hard campaign for him in 1890 and carefully prepared him for it. I started him first at Pittsburg that season and had no trouble in winning at that meeting; but at Cleveland, which is regarded as the great storm center of the grand circuit, I knew I should meet a different antagonist than I had yet encountered. Adonis was at that time the pride of California's race goers and, with the experienced and accomplished Hickok behind him, he had been campaigning through the minor circuits without meeting defeat, and all horsemen expected that when he and Pointer met there would be a battle royal, and those who saw the race were not disappointed. There were a number of starters in the race, but, as expected, the contest for first place was between Pointer and Adonis. In the first heat, Adonis led until the last quarter was reached, when I, having succeeded in passing the other horses, moved up so that as we entered the stretch Pointer's head was upon the wheel of Adonis, both going true and very fast, Pointer gaining at every stride, and when with-

in about fifty feet of the wire he was fully a neck in the lead, without any known cause, he left his feet and passed under the wire at a run, thus giving the heat to Adonis. But this mishap made no difference in the outcome of the race, as he won the next three heats. We had several other contests during the Grand Circuit meetings, but Adonis did not succeed in winning one of the races. The defeat of Adonis greatly agitated the horsemen and sporting element of California, and the next year they sent over the fast and almost unbeaten Yolo Maid to take the measure of the great son of Tom Hal. Our first meeting was at Cleveland, and the known speed and race-horse qualities of these two contestants caused excitement to run high. Yolo Maid could show a great burst of speed and was very fast in getting away, and in every case would lead Pointer to the first quarter by many yards; but I never drove Hal Pointer in any race where if he could get his nose to the wheel of the sulky of the other horse at the head of the stretch he could not beat him to the wire, and Yolo Maid proved no exception to this rule. She would rush away at a two-minute gait for the first quarter, but Pointer saved his fast rush for the home stretch and in his races often paced the last quarter in 30 seconds; and, like Adonis Yolo Maid returned to California without having won a sing'e race from Pointer, although she attempted to do so all through the Grand Circuit. But the Californians did not give up. I started Hal Pointer that season (1891) in July, and raced him the whole season over all kinds of tracks, some of which were very hard and his feet became a little tender, so much so, that he would not fully extend himself on a hard track; and while in this condition, Direct, who had been brought from California early in the season and given an

easy campaign, was especially prepared to try and wrest the crown from Hal Pointer. We first met at Terre Haute in October, where, after a very hot contest Hal Pointer won. Our next meeting was at Nashville, where the track was hard, and Direct won. We met a few days later at the then new kite-shaped track at Columbia, Tenn., and the track was so hard that I could not get Pointer to do himself justice, and he again suffered defeat; but to accomplish this feat he compelled Direct to pace the three fastest heats that had up to that time ever been made in harness.

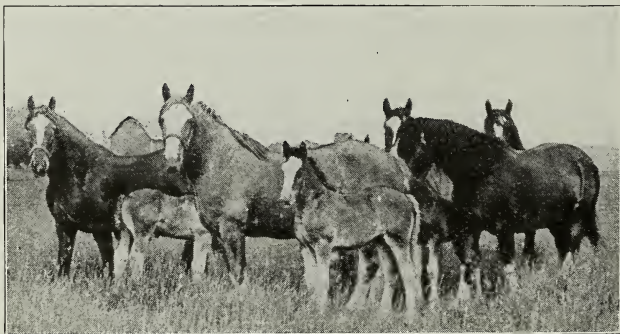
The next season when the horses were more nearly on an equality, in a number of races Hal Pointer clearly demonstrated his superiority as a race horse, and defeated Direct every time they met. I campaigned him during 1893, 1894 and 1895. In the free-for-all pace at Philadelphia, in 1894 he was taken sick during the race with an ailment that baffled all veterinary skill to diagnose. He had never been sick before and showed no signs of illness until in the race. Both he and Yolo Maid were taken sick in the same heat with the same ailment, which gave rise to the suspicion of foul play on the part of some one. But what ever it was he never recovered from it. I wintered him with the rest of the Hamlin stable in California during the winter of 1894 and 1895, and started him in several races in 1895; but he still showed the effects of that sickness; and we gave up campaigning him. After his race in Cleveland, in 1890, Mr. Steele and myself sold him to Harry Hamlin of Village Farm; but he continued in my stable until I went to Village Farm in 1892, and was after that in that stable and was driven by me as long as he continued to race through the Grand Circuit. I do not believe any horse ever lived that possessed more racing sense,

gameness, and endurance than did this grand horse. I have often seen him, after a hard fought five-heat race, being cooled out when another race would be called on, and he would commence to get restless and uneasy and show by every action that he wanted to get back to the track and take a hand in the excitement.

Hal Pointer was a difficult horse to make score fast, and was always slow in starting away. He did not seem to be imbued with the necessity of winning the heat until the middle or the latter part of the mile had been reached, and then he would bend all his mighty energies in an endeavor to reach the wire, and very few horses were able to withstand his terrific rush. He never required, and would not endure, punishment. Once when I was giving him a workout he did something I did not like and I struck him with the whip twice, and, in spite of everything I could do, he ran three miles before I could stop him; I never tried it again, and in all the races I ever drove him I never did anything more than to carry the whip over him, and when I wanted extra speed I would shake it at him.

The Hal family of pacers are pre-eminently the greatest pacing bred pacers of America. So far as I have any knowledge upon the subject, I do not know of more than a dozen of the

get of Tom Hal that have been conditioned and trained for racing, and of this number I do not know of one that could not beat 2:30. How many others of the get of old Tom Hal that would have been sensational turf performers had they been trained and given the opportunity the racing world will never know as they spent their lives at the plow and doing the drudgery of the farm, and their possible brilliant achievements lie buried beneath the dust that filled the eyes of a prejudiced and unappreciative public. Many people not familiar with the form and beauty of the Tennessee pacing-bred pacer have a wrong impression respecting the conformation and qualities of that horse. From what they have read and been educated to believe, the pacing-bred pacer is a horse carrying his head low, with a steep rump, a ewe neck, crooked legs, and sleepy looking head, with no life or ambition except what is injected into them by a vigorous application of the whip; whereas the Tennessee pacer is a horse of beautiful form and finish, with a head as intelligent and showing as much fire and ambition as that of any horse that ever looked through a bridle; and in all the qualities that go to make up an ideal race or driving horse, they compare favorably with those of any breed with which I am familiar.



OPPORTUNITIES PRESENTED IN THE FUTURITY SHOWS

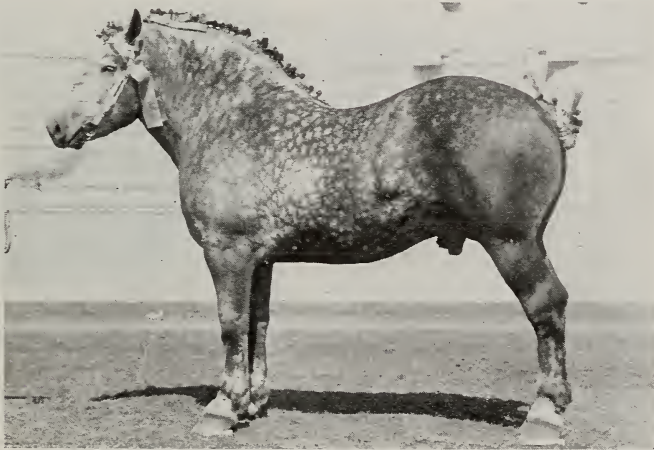
High Prices Secured for Yearlings by Cooperating Horse Interests

PROF. DONALD J. KAYS, Ohio State University

THE futurity principle as applied to the field of draft horse production has been a demonstrated success. Four Percheron futurity ever held east of Ohio formulated plans for the first Percheron Futurity ever held east of the Mississippi River. Because of adverse conditions which usually oppose the efforts of the pioneer in any field, the first Eastern Percheron Futurity—

cedents of former shows. Splendid testimonials were these futurity classes of the enthusiasm manifest among breeders. To the minds of those connected with the management of the show—since the time of its inception—came the thought, Eastern Percheron Futurity Show has arrived at last.

The Eastern Percheron Futurity Show held annually at the Ohio State



The French have given us a fine drafter in the Percheron.
The undefeated Lagos.

held in 1912 at the Ohio State Fair—marked rather a modest beginning. However, the principle that prompted the show was right, and subsequent growth evidenced a generous recognition at the hands of Percheron breeders.

The Eastern Percheron Futurity Show in 1915, proved that the event had long since out-grown its swaddling clothes. The fillies and stallions that pranced into the arena to do battle with each other on that occasion solicited commendation from everyone. Speculation was rife as to which would wear the blue. There were enough colts in each class to upset all number pre-

Fair, is representative of draft horse futurities held elsewhere. The show is financed by special appropriation from the State fair board, by contributions from draft horse associations and by money accruing from entry fees for colts that compete.

Futurity shows are so called, because the futurity principle as originally thought out, necessitated the nomination of mare in foal whose colts would be eligible to compete when the proper time arrived. Trotting and pacing futurities, in the case of race horses have been the practice for many years. Breeders of trotters and

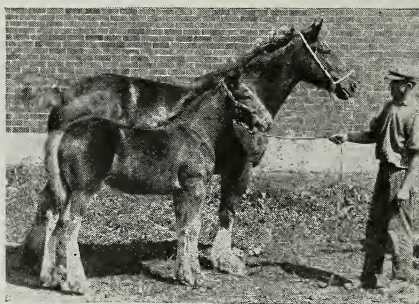
pacers nominate their brood mares, and the colts if kept good are carried along and their speed developed, so that they may race in futurities for two and three year old colts. Colts whose dams are not nominated are not eligible to compete, hence the necessity for mare nominations. In the case of draft horse futurities the colts are usually shown as yearlings.

The advantages of the futurity principle as applied to the field of draft horse production are many. In the first place—the draft horse futurity ministers unto a larger breeder constituency, than does the same principle in the case of American trotter and pacer production. In the second place—it is common practice with state fair boards to make but four awards in each class. This minimizes the number of winning exhibitors and fails to invite competition. In the case of the futurity show, 8, 10, or 12 awards are commonly made. This gives more range to the class list and encourages even the smallest breeder to compete. The futurity show throws wide the door of opportunity to the small breeder and gives him some hope of making an occasional bull's eye. Too—it should not be forgotten that the futurity colt is eligible to compete in the classes as regularly provided in state fair catalogues. Hence the futurity event gives a good colt an opportunity to win much more money than where competition is limited to the regular classes.

The futurity show for draft colts is pregnant with advantages. It encourages better feeding and care of colts during the growing period. This growth is absolutely essential for the best results at the time of maturity.

The futurity competition is a splendid method of advertisement for breeders, resulting in the early sale of colts at long prices. When these colts are aggregated at the fairs, buyers have an opportunity to see them for a minimum expenditure of both time and money. When sales result at remunerative prices, the breeder rids himself of the element of risk and responsibility which always attends horse production. High prices for yearlings are a source of satisfaction to breeders.

The colt that wins a futurity event



First mare and foal, grand champion Clyde female at the Iowa State Fair

enhances his own value and increases the prestige of his sire and dam. The breeder of the colt, the owner of the sire, if the owner be other than the man who owns the dam, are both directly benefited. Hence it is readily seen that the futurity, is a cooperative scheme for the promotion of horse interests.

Yes, the futurity show, a modest institution a few years ago is today the chief attraction in the horse department at our state fairs. Let us indulge the hope, that the good futurity ship, loaded with so many opportunities for draft horse breeders, may be kept upright and guided safely toward an ever-rising sun.

RELATION OF ADVANCED REGISTER WORK TO BREEDING

How High Producing Strains Are Secured by Testing and Selecting

W. H. CALDWELL, Secretary American Guernsey Cattle Club, Peterboro, N. H.

THE Advanced Register is an outgrowth of private tests, home tests and public trials. It is an advance on the two former in that it brings official supervision to the work and in a greater measure insures public confidence. It is more satisfactory than public trials, in that it reduces the competitive feature and allows the breeder to control his animal amid home surroundings and with the freedom of his own judgment. The first of these registers was established upon the seven-day test basis. While it was a great step in advance, it still encouraged the flush testing for a short period, which is more a measure of the skill of the feeder than an index of the ability of the cow. Especially would I emphasize this if it is viewed from a breeding standpoint rather than a measure of the capacity of the individual animals.

I thoroughly believe in a register based on year's records of butter fat and supervised through the various agricultural experiment stations and colleges. What a dairy cow will produce in product and offspring for an entire twelve months is a very safe means of judging the merits of the animal. What this animal's sire and dam have done in producing animals capable of similar work is also recorded. This is bringing Advanced Registry work to the aid of the breeder as well as to the credit of the breed.

The only Advanced Register record which is recognized by the Guernsey breed as an indication of a cow's productive ability is her yearly production of milk and butter fat. Every cow that produces such a yearly record exceeding a certain minimum requirement of

milk and fat produced under conditions required by the American Guernsey Cattle Club, enters the Advanced Register and is given an Advanced Register number and certificate. All animals having such certificates are published in printed lists that are sent out from time to time from the American Guernsey Cattle Club office. This list shows not only the amount of milk and butter fat produced, but the age at which the record was made and the number of months the cow was in calf while making the record.

An Advanced Register record, of course, does not tell the whole story, but one should become acquainted with the conditions under which these records are made. To insure confidence in the making of a record, a representative of the state agricultural college or experiment station in the state in which the cow is owned is sent to the farm each month for a year, where he personally sees the cow milked, weighs, samples and tests the milk for one or two days. If in this period the cow produces over a certain number of pounds of fat, another test is made later in the month by another supervisor as a check on the first test. The average percent of fat obtained by these supervisors in any one month is certified by them, and used as a basis of calculating the production for the month. Such production for twelve consecutive months is added together and termed her Advanced Register record. When this method of determining the record is used it has been found by experiment to check so closely with the actual production of a cow that the correctness of the record is never questioned.

In every breed there are families which are prized more highly than others for the persistency with which they stamp the desired characteristics on their progeny. A record of such merit may yet be found useful among the beef breeds. Some measure to record and indicate the qualities which have



Lady Royal of Pomeroy, one of the excellent daughters of Langwater Royal, owned by M. T. Phillips, Pomeroy, Pa. 7,918.5 lbs. milk, 315.67 lbs. fat as a two-year-old.

been brought together and have led up to the result.

So far quantity and not quality has been considered. Aggregate production only has been the watchword. This should and will lead to a registry of quality. In this present age it is fast becoming important not only to know how much milk or how much butter fat a cow will give, but also the quality of her product—its natural color, its flavor; in other words, the commercial usefulness of the animal.

Another important question is that of relation of form to merit, of form to quality; that is, the relation of type to performance. What form or type of hen laid the most eggs? What form or type of cow or bull produced the steer of the best quality? What type of horse made the best record? What are the measurements of the form and capacity of the dairy cow that produced the most milk or the most butter fat that had the highest natural color, grain and flavor.

Probably one of the greatest influences of Advanced Register work is the effect which previous records have had upon the succeeding ones. A most careful study of the work of the Guernsey Advanced Register has shown this influence to be a most potent one. This is true not alone from the standpoint of the individual animals, but in a more general way upon the advancement of the breed.

Since the establishment of this Register, in 1901, there has never been a monthly summary of the records but what there has been an upward trend in both the average milk and butter fat production. Comparing the earlier records with the latter ones, a study was made of the first 1500 records and the second 1500 records in the Guernsey Advanced Register, in order to see just where the improvement in production in the second lot over the first lot was being made. It was found from the butter fat standpoint alone that while in the first 1500 records made the largest number fall in a class under 400 pounds, the second 1500 records showed the largest number falling in the 400 to



Imported Itchen May King, senior and grand champion owned by W. H. Dupee, Edgemore Farms, Santee, California.

500 pounds class, with a large percentage decrease in the number of records which fell in the under 400 pound class, and substantial increase in the number of records falling in each class above this one.

The significance of this may be two-fold. First, the interest, study and thought which the breeder or owner put upon the earlier records could not help but stimulate him to greater effort with the succeeding work.

On the other hand, the work done with the individual animal cannot help but have exerted its influence on the progeny. This is especially revealed in



Laureston Sunflower, one of the great matrons and show cows of Barclay Farms, Rosemont, Pa.

the growth of our list of great sires and producing dams. March, 1915, the time of the last revision of this list, it was found that there were 93 more sires than in the previous list issued one year before the above date. Sixty-seven of these were sons of bulls that were in the previous list and have to their credit 235 Advanced Register daughters. The list of producing dams contains the names of 102 new cows who have a total of 183 Advanced Register daughters and 32 Advanced Register sons.

Turning now to a study of the question of the effect of previous records on the individual animal's later production we find some striking facts. In making up the requirements for the breed, the minimum production was placed at 250.5 pounds of butter fat for a two-year-old heifer, with an addition of one-tenth of a pound of fat for every day the animal is over two years old at time

of commencing of the record up to five years of age, when the requirements are found to be 360 pounds of fat, and no increase thereafter made. How closely this tallies with the results of nearly 4500 subsequent records is shown by the fact that the average of our two-year-olds is 132 pounds above the requirements for that age, the three-year-olds 136 pounds above their requirements, the four-year-olds 136 pounds and the aged cows 135 pounds above their requirements, thus showing that the average daily increase of the Guernsey average production, according to age, is practically one-tenth of a pound of butter fat per day, bearing out the wisdom of selecting that fraction as the basis of increase requirements.

Thirty-five cows that were tested at two years of age, and later retested as mature animals, averaged in their first records about one pound less than the average for the breed at that age, while

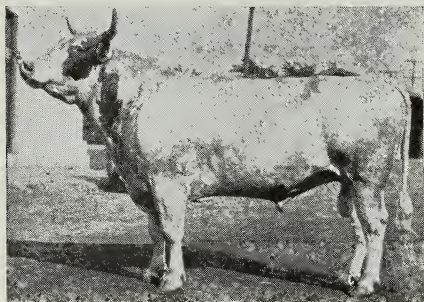


The grand champion Ayrshire cow Auchendraugh Hattie 6th at the Toronto Exposition.

upon retest at maturity they averaged 40 pounds more than the average of the mature Guernsey. This study was carried on for all cows that were tested at 2 or 2½ years of age, and again retested either with next calf or later calves, and it was found in each instance that the average increase in production due to the increase in age was far above the average increase of the

breed on account of age. It is without doubt true that the making of a record when the cows were but 2 or 2½ years of age was a potent factor in this great increase.

Incidentally it might be mentioned that at the present time there are 105 cows in our Advanced Register which have produced over 700 pounds of but-



The grand champion Ayrshire bull, White Superior of Village Farm at the Syracuse Fair, Milford, N. Y.

ter fat, an increase of over 66 percent in less than one year.

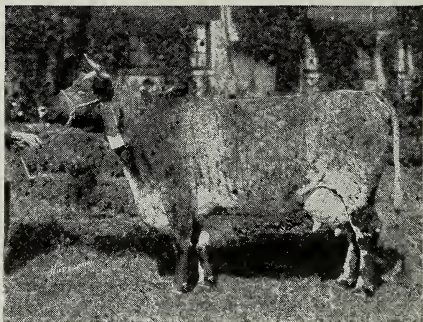
On April 3, 1915, there were 63 Guernsey cows that have produced over 700 pounds of fat. Of this number, three have four official records, the first averaging 548 pounds of fat, the second 567, the third 674 and the fourth 810.

One of these cows has produced to date ten registered calves, four of which have been born since making the last record, and she is carrying at the present time her eleventh calf. One of the others lived to be ten years of age and produced six registered calves in that time. The other lived to be nine years of age and died from blood poison contracted at calving time. Regarding her work the owner said: "She was so delicate looking that I held off breeding her until late, she being 3½ years old before producing her first calf." She was immediately entered for the Advanced Register and produced a living registered calf after each record

except the last, as stated above, and has a total of four calves to her credit. One of her daughters, calved at three years of age, late in 1912, has a record of 730 pounds of fat, has two living daughters and is safe in calf at the present time.

Ten of these 63 cows have three records each, the first averaging 513 pounds of fat, the second 701, and the third 805. Of these ten cows, all but two have either produced registered progeny since making their last record or are safe in calf at the present time. One cow has produced four calves since completing a record of 836 pounds of fat, another dropped two calves and the others, with one exception, have dropped a calf or are safe in calf at the present time.

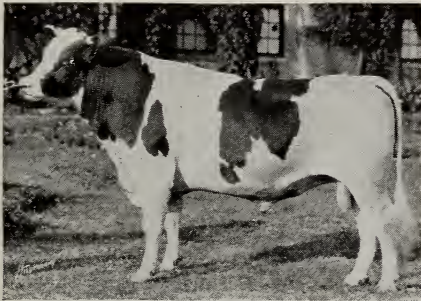
There are 28 of these 63 cows that have produced over 700 pounds of fat that have two records. Of this number, 11 have completed their records so recently that if a calf had been born since it would not necessarily be regis-



First Dairy Shorthorn cow, Helpmate 2d, at the Minnesota State Fair.

tered at the present time. Of the 17 remaining, 11 have produced calves since making their records or are safe in calf. One cow that made 533 pounds of fat as a two-year-old has produced five calves since making her last record of 714 pounds of fat and is safe in calf at present. Another, who as a two-year old made 424 pounds of fat, has

produced four calves since making her last record of 778 pounds of fat, and is safe in calf. Another produced five calves after making her last record of 725 pounds of fat, having made 547 pounds of fat the previous year. She died at the age of 12 years and has nine registered calves to her credit. Of the six who have not had any progeny since



King Segis Johanna Grahamholm, grand champion Holstein bull, at the Minnesota Fair.

making their 700 pounds or over record, one died of a broken leg shortly after the record was made, and another had to be killed on account of an accident shortly after completing her record.

The value of the Advanced Register to the individual breeder is first noticed in its drawing attention to the cows in the herd that are really superior. As one breeder tersely puts his experience, "I knew that I had a good herd, but did not know that some cows were worth three or four times as much as others." An analysis of five auction sales in the state of Illinois was made by the dairy department of the university, comparing the prices paid for animals with official records and those without such information regarding production. The following average of prices showed that 187 cows without records sold for an average of \$288 each, while 171 with records in the same sales averaged \$465. This put a premium of \$177 per head on the tested

cow to cover cost to the owners for making records. A still better demonstration was given in the sale of heifers, 184 out of cows without official records selling for for an average of \$209 each, and 133 out of cows with records for \$341 each. The average value of the dams' records on price of offspring was thus shown to be \$132 each. These figures give an approximate monetary value to the breeder of Advanced Register work.

To use the breeder's own words, "The charge is often made that the cost of Advanced Registry work is prohibitive to the average farmer or to the owner of a small herd. Before I entered upon it I shared the feeling, sometimes expressed by the inexperienced, that the Advanced Registry is a nice plaything for the agriculturist, but too risky and expensive for the farmer. I had been accustomed to weigh my milk and to make the Babcock test at intervals. I knew, therefore, or thought I did, what my cows were doing. What more could I hope for. After a year of trial I propose to show what actually happened.



Fancy's Raleigh, grand champion Jersey bull at Scappoose, Oregon.

"The cash account for the year is as follows:

INCOME.

Cream at 50c per lb. for butter fat..	\$2888.13
Skim milk at 25c per 100 lbs.....	245.07
Manure at \$30 per cow per year.....	340.00
Twelve calves	2175.00

Total \$5648.20

EXPENDITURES.

Feed	\$1449.81
Care	720.00
Depreciation, stable, ice house, dairy, 10 percent	520.00
Ice and dairy supplies.....	72.00
Veterinary	12.00
Fuel for dairy house.....	55.00
A. R. tests and retests.....	180.00
Board of Testers.....	40.00
Entry fee for A. R. Certificates.....	120.00
Clerical work	48.00
Advertising	28.00

Total \$3264.81

Profit of twelve cows..... \$2483.39

Another example is shown by the results of a breeder in Maryland. Starting seven years ago with three heifers and a bull, with two more cows added later at a very moderate outlay, the herd has now grown to some thirty head of animals. The size of the individuals is above the average and they have been given the best of care from calthood up. The head of the herd weighs over 1900 pounds, and one of his sons recently tipped the scales at 1500 pounds at two years of age. The cows are all entered for the Advanced Register when they first freshen, and are re-entered each time they calve. That continuing yearly records really develops the animal and does not injure them as regular breeders is well demonstrated in this herd. One cow, for instance, is now starting her fifth record. She has had seven calves, four of which have been heifers. Her first calf has just about completed her fourth

official record, the last one of which placed her among the five highest cows of the breed for her age. Her second calf was accidentally killed. Her third calf has completed a two-year-old record of 573 pounds of fat, and in 311 days in her three-year-old form has produced 540 pounds of fat. Her last three calves have been bulls, one of which has been retained as a herd bull, another sold for \$500 and the other is a calf and will be sold soon. All of the progeny of the above animals are still living, except the one accidentally killed, and all are regular breeders, bringing a calf every 12 to 14 months.

In considering this most important factor in the development of the dairy animal, we have made the cow as the center of our thoughts. If in the future we would evolve some register of merit that shall place more perceptibly in the foreground the ideal and prepotent dairy bull in any of the several breeds, we shall add one step more in the forward progress of dairy husbandry.

Did you ever stop to think of the influence which a sire stronger or better than your females exerts in your herd? In the first generation the progeny should be 50 percent of his merit; in the second generation, 75; in the third, 87½; in the fourth, 93¾; in the fifth, 96⅞; and in the sixth generation, 98 11-25 percent.



DEVELOPMENT OF SWINE PRODUCTION IN OHIO

Shifting of Hog Raising Sections With Cereal Growing

PROF. JOEL S. COFFEY, Ohio State University

AN eminent authority on swine has said—"In south-western Ohio has occurred all the important development of the lard hog." This is probably true, but one must distinguish between development and improvement for doubtless there has been much lard hog improvement outside of Ohio.

Conceding, however, that at least, Ohio has played an important role in lard-hog breed development, let us then look into the history of the hog as he has progressed in this state. It is a most interesting history and shows how

from the standpoint of its immensity stands unsurpassed. Corn, the great cereal crop of America grew with such ease and in such great abundance that marketing and transportation problems had to be met and solved. In the solving of these problems the hog came in as an important factor and his use and progress in Ohio has been little short of marvelous.

Pork as a source of human food has been recognized for ages. The ancient Greeks and Romans prepared dishes of rarest delicacy from the carcasses of



A good illustration of Berkshire prolificacy.

environmental conditions, such as food supply will cause man's selection of animals to be such, as to make the animals readily adaptable to said conditions. To trace the history of the swine industry in Ohio, one must necessarily dwell more or less upon the history of the state in general and more specifically upon the state's agricultural history.

The settlement of Ohio marks an epoch in our country's agricultural history. The reason for this assertion is, that the Ohio country and its settlement represented the shifting from eastern conditions to central western or cornbelt conditions. It meant a readjusting of affairs generally, and the opening up of an agriculture, which

swine. The same may be said of the more modern German and English people. However, the domestication and improvement of hogs by our more ancient forefathers was of little significance. Doubtless most of the hogs used by Ancient Greek and Romans were secured in the hunt and those of mediaeval times, though given some attention in the way of herding, were not improved. Nevertheless the fact, that swine were used as human food, places an economic significance upon them from early times.

The type of hog existing in earlier times was of such character as to enable it to undergo nature's law, the survival of the fittest. He had to seek and find

his own food and defend himself from enemies. Thus nature made him a slim, active animal, rugged in constitution and carrying no surplus fat.

These same characteristics were present in the early American hog. Coming with the early settlers in the eastern

“The swine in many parts of our state are of a bad breed and slow and expensive to fatten.”

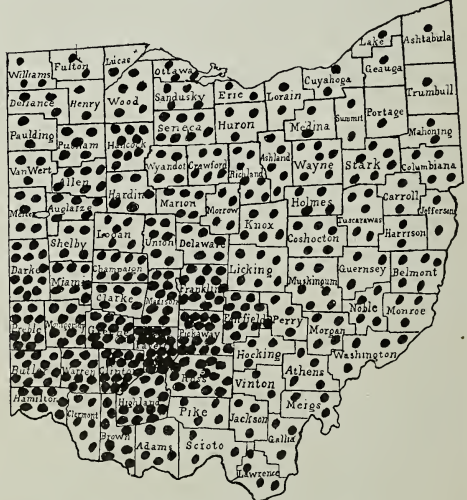
It is interesting to know how our eastern farmers sought to overcome the handicap of these expensive gains in their hogs. They first sought to do it by the feeding of inexpensive feeds such as slops and various waste products of the farm. Another statement from the Albany Cultivator of 1834 illustrates this point. It reads as follows: “Pork has not been as cheaply fattened as last year. The want of apples this year has been a serious loss to this interest and the consequence was that to fit our hogs for market drew too much on our grain crib, which has made the fattening of animals extremely unprofitable.”

The settlement of Ohio and the abundance of corn grown here, more than ever impressed the hog grower that he must produce an animal which could utilize grain with profit. This

Swine distribution in Ohio in 1850. One dot for every 4000 hogs.

states, the hog found an environment of plenty. His lithe, active frame carried him to haunts of luxurious forage and delicious mast. There was no particular worry on the part of the hog owner as to the livelihood of the animals and there was no effort to adapt the type of swine to artificial conditions.

However, the time soon arrived when natural sources of food no longer existed. This meant that if swine were to be kept, they must be fed upon the cultivated crops of the farm. The first efforts of the hog raiser along this line were poorly rewarded. Why? Because the hogs were of such type as to be unresponsive to such methods of feeding. A statement from the Albany Cultivator, published at Albany, N. Y., 1834, proves the assertion made above. The statement reads:



Swine distribution in 1870.

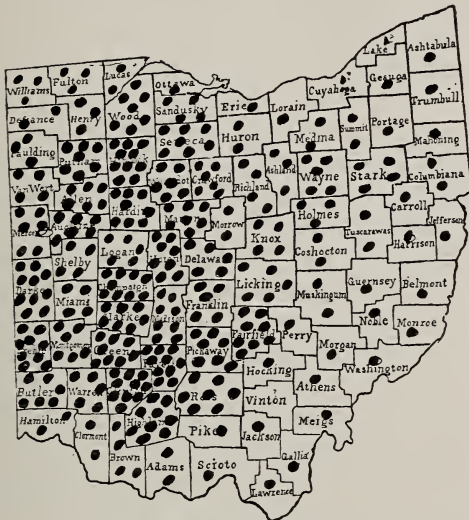
eventually led to the origin of the lard type hog. However, right at first, this end could not be obtained, due to marketing conditions. It was not until 1832 that internal means of transporta-

tion were established in Ohio. Therefore, no matter what the hog was fed, he must be of such type, and with sufficient muscular activity to carry himself to market.

With the opening up of canals in 1832 and later the advent of railroads in the

part of swine growers to get animals which responded easily to grain feeding. The Miami Valley hogs became famous for this ability and therefore the statement quoted in the opening of this discussion must be considered in the main as true.

The average annual production of hogs in Ohio from 1850 to 1910 has been 2,144,000 animals. This makes an average annual production of over 24,000 hogs to the county over the same period. In consideration of these averages there are ten counties in the state which over a period of sixty years have been pre-eminently important in the production of hogs. These counties and their averages over a period of fifty years are as follows:



Swine distribution in 1910.

state there were practically no limitations to the extent to which a hog could be fattened. Animals were selected with this characteristic in mind and from 1832 to 1850 the lard type hog was practically established in Ohio. This development was not due to a demand of the consuming public, but rather due to a concerted effort on the

Average for 50 years.

Rank.	County.	
1.	Ross	42,762
2.	Clinton	42,506
3.	Fayette	42,269
4.	Highland	41,705
5.	Pickaway	41,241
6.	Darke	38,512
7.	Franklin	38,147
8.	Fairfield	37,011
9.	Greene	37,210
10.	Hancock	36,210

Although this ranking places Ross County at the head of the list for fifty years production, it really should not



Pigs should be weaned at from six to ten weeks of age and kept on a growth-producing ration with plenty of good pasture.

be so considered from the standpoint of area included. Ross County contains by far the largest area of land of all the counties listed. In consideration of areas, Clinton and Fayette Counties have really maintained the best records for hog production over a long period.

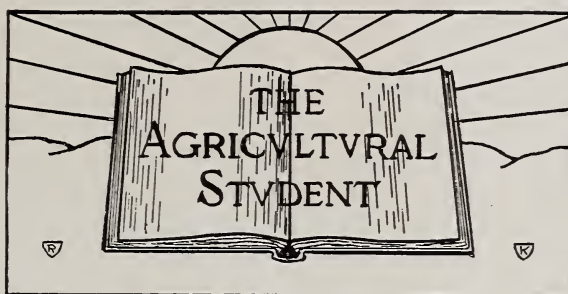
A combination of three factors made southeastern Ohio the hot-bed for lard hog development. These were— (1) corn production, (2) relative convenience to the Ohio River, (3) the establishment of the Cincinnati market. In more recent times there has been a shifting of hog production from this portion of Ohio, and the distribution of hogs has been extended more uniformly over the entire western half of the state. The accompanying maps show this quite clearly. In the maps, each dot represents four thousand hogs. It will be observed that in 1850 there was more or less of a concentration of hogs in the southwest part of the state. The concentration was decidedly evident in 1870, while in 1910 the distribu-

tion seems more or less uniform over the entire western half.

Swine production in Ohio has followed corn production very noticeably. However, in recent years the exact coincidence of high corn and swine counties has not been so apparent due to the ease and low cost of transportation which facilitates the shipping of corn from one county to another. This same factor of transportation it seems should encourage to a greater extent the growing of more hogs in Northeastern Ohio, where there are to be found considerable quantities of butter-milk, skim-milk and other by products of the dairy.

Altogether we must concede to Ohio her importance in lard hog development, yet at the same time we must admit there is more to do in the way of improvement and extension into the lesser inhabited counties, and thus beyond question make Ohio still outstanding in the quality and quantity of the swine which she produces.





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COLUMBUS, OHIO, MAY, 1916

EDITORIAL

In every breed of livestock there are periods when great popularity has greeted the breed. Booms in Holsteins, Herefords and Berkshires have been frequent but the latest one which looks to be a lasting one is that of the Milking Shorthorns. Not only have sales and prices been good, but owners of country estates and breeders of dairy cattle are taking a great interest in the dual purpose stock. Demand for milking Shorthorns of true dual purpose qualities exceeds the supply.

In Volume I of the Milking Shorthorn year book will be found 250 names on the record of merit. Though this has been of unusual benefit to the breed the full force of its influence has not

yet been felt. The breeders of Milking Shorthorn who are making the best of their opportunities have prosperity knocking at their door. They must, however, heed the words of an experienced breeder and keep their stock dual purpose. It would be as ruinous to the breed to incline toward the dairy type as to incline too much toward the beef type. It is unfair and unnecessary to place the Milking Shorthorns in competition with the strictly dairy or the strictly beef breeds. They cannot outstrip the dairy breeds in milk production nor can they outstrip the Herefords or Angus in beef production. The Milking Shorthorn is a cow that will make 10,000 pounds of milk a year, keep in good flesh while doing it and produce a calf that as a steer can make profitable

gains and bring a good price on the market. With this in mind the breeder of the milking Shorthorn should keep the image of true dual purpose type constantly before his eyes. The field for them is large and with practically no competition and with a little conscientious work in breeding, his efforts should be crowned with success.

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From the time of the first improvement of the dairy cow, attempts were made to put the cow on some standard basis by which her merits in production could be judged.

COW TESTING The first test that was near being reliable was the butter test that was first used in 1880 and continued until the adoption of the Babcock test in 1897. Due to the water and curd that may be incorporated into the butter in varying amounts this test did not prove satisfactory. The Babcock test however did away with this chance of error by a determination of the fat by combined chemical and physical means. The latest movement now on is the organization of testing associations in which 26 farmers organize to buy a Babcock tester and hire a man to do the testing.

The farmer may be benefitted in many ways by the use of the Babcock test. It is an aid to him in keeping an exact record of each cow in the herd and through it he may eliminate all cows which are unprofitable. By the use of the records the work of building up the herd through breeding is put upon a scientific basis because the farmer will know what each cow is producing and hence will not breed an unprofitable cow by mistake in judgment. The publication of the records in the different farm papers serves as an advertising medium to the farmer thus bringing his herd constantly before the public. In this way he is better enabled to com-

mand a higher price for his stock than his neighbor who does not test. These records may be also used in advertising the herd through the advertising columns. Lastly a buyer is more willing to pay more for an animal that he actually knows the merits of than one that is entirely unknown to him.

Some farmers object to the testing of cows on the ground that it costs too much. But when it is considered that it enables him to eliminate from the herd all the animals which are a source of loss to him and when it also serves as an advertising medium by which he can secure a higher price for his stock this objection seems unreasonable.

Another objection is that cows when they are tested for a yearly record are forced to a premature breakdown because of being crowded too hard by the farmer in his endeavor to make the record. This is a factor that is under the control of the feeder and it has been found that where good judgment has been used in the handling and feeding of the cow no perceptible injury has been caused by testing and in most cases the cow has been improved through it as is shown by her increased milk and fat production in the year following the first test.

The movement in organizing of testing associations throughout the state carried on by the dairy department is one that deserves the support of all students of agriculture and all dairy farmers. It is the means by which the occupation of dairying may be put on a business basis. It gives the dairy man a chance to have at a small cost a reliable tester visit the farm once each month to test the cows and give suggestions in feeding and handling the cows. Through it the dairy will become a source of profit and instead of it being a drudgery it will become a pleasure.

The producer of market animals and the breeder of purebreds have always been at variance. The purebred breeder deplored the lack of progressive vision of the market producer while on the other hand the market producer condemns purebreds as an expensive luxury. At no time has the outlook for the breeder of purebred horses been brighter than it is today. The producer believes that since the demand for most classes of horses is now good, the future will see high prices spread over the market during the years of Europe's recuperation.

Such men however fail to realize the importance of the need of constantly improving their types of livestock. They base their conclusions on the meat animals where necessity of sustenance is so insistent that the canners come near to being as profitable as the highest type of steers or wethers. In this case difference in quality is not so easily recognized in proportion to its cost which introduces a relatively large speculative element. Horsemen who reason along these lines expect to get higher prices for the class of animals they produce at present, instead of breeding a type of horse which will command a higher price because of its quality.

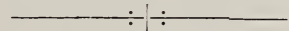
This attitude in respect to the higher types of animals is found to a greater or less extent the world over, but it was not this attitude that established horse breeding as a business. In Scotland, Belgium and in France they have succeeded in producing invincible drafters because they centered their ideals of draft efficiency and constructively approached it year by year and generation by generation.

The bulk of the horsemen lack a vision in breeding. The idea that Europe will have to call on America to

replenish her breeding studs is as absurd as the idea that she will be seeking the products of the American fine arts to regenerate her operas, concert halls and picture galleries.

The financial condition of Europe after the war will compel her to enter business as a producer and as an exporter. What the war offers to the draft horse trade of this nation is the opportunity of catching up. Europe has always been a step in advance of America in horse breeding and not until we catch her can we hope to enter the markets formerly dominated by the European horses or fill the studs now so depleted by war.

Horse improvement lies chiefly in the concerted attention of all the breeders to the tops with one type in view. Not until all the breeders work for a common end can we expect to rival Europe as horse breeders which if it is accomplished must be done on a basis of equal or greater merit.



Little do we realize the debt we owe the cow. During the dark ages of savagery and barbarism,

THE DEBT WE OWE THE COW

we find her early ancestors natives of the wild forests of the old world. As the bright rays of civilization penetrated the darkness of that early period, and man called upon the cow, she came forth from her seclusion to share in the efforts that gave us a greater nation and more enlightened people!

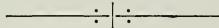
For two thousand years she has shown her allegiance to man, sharing alike in his prosperity and adversity, responding nobly to all that was done for her, until through her development she became an idol of the people of her native country.

In 1492, when Columbus made his

second voyage to America, the cow came with him—and from that time to the present day she has been a most potent factor in making this, our country, the greatest nation with the highest type of womanhood and manhood history has ever known.

Her sons helped till the soil of our ancestors and slowly moved the products of the farm to market. They went with man into the dense forests of the new world, helped clear them for homes, and made cultivation possible for the coming generation—and when the tide of emigration turned westward, they hauled the belongings of the pioneers across the sun-scorched plains and over the great mountain ranges to new homes beyond.

Truly the cow is man's greatest benefactor. Hail, wind, droughts and floods may come, destroy our crops and banish our hopes, but, from what is left, the cow manufactures into the most nourishing and life-sustaining foods—and is she not life itself to the thousands of little ones stranded upon the hollow hearts and barren bosoms of modern motherhood? We love her for her docility, her beauty and her usefulness. Her loyalty has never weakened—and should misfortune overtake us, as we become bowed down with the weight of years we know that in the cow we have a friend that has never known to falter. She pays the debt. She saves the home.



What should the year 1916 mean in American agriculture?

**AMERICAN
AGRICULTURE
IN 1916**

In the first place, it should mean increased yields of crops. The year 1915 produced farm products in the United States totaling in money value ten million dollars.

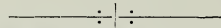
This shows a healthy increase over the preceding year. The year 1916 should show an even better result. It is argued by some that the war will result in a depleted population in Europe which will mean less demand for agricultural products. The decrease in population, however, will mean more than a corresponding decrease in crop yields in the countries where it occurs.

In order to secure not only improved crop yields but also to insure fair prices, diversified farming should be practiced. This is a warning applicable particularly to the south, but of importance also to individual farmers here and there in the north who have not yet realized its importance.

In the second place, the year 1916 should mean improvement of transportation and other marketing facilities. In many parts of the country, lack of these is the greatest hindrance to effective agriculture.

In the third place, the year 1916 should show an appreciable improvement in the conditions of rural life. It should mean better rural schools, better rural churches, and better social life in rural communities.

These three things—larger crop yields, better marketing facilities, and a healthier social life in the rural community—are the great contributions which American agriculture can make not only to its own welfare but to the welfare of the entire world in this present year.



The staff of The Agricultural Student is indebted to The Field Illustrated of New York City for many of the illustrations used in this issue. The cuts on pages 609 and 611 were loaned by F. C. Crane, agricultural agent for The Great Northern Railroad of St. Paul, Minn.

HOW OHIO DEVELOPED THE EARLY MERINO FLOCKS

Experiences of Seth Adams in Introducing Fine-wooled Sheep

CLIFFORD T. CONKLIN, '16, Ohio State University

THE explorer and pioneer found no sheep in a wild or semi-wild state in Ohio. There were other domestic animals much better adapted to the wilderness conditions. It was probably several years after the first settlement before sheep were introduced into the Ohio Valley. In 1788 the first settlement was made at Marietta, and it was not until 1798 that the first sheep were brought from Pennsylvania into Ohio.

There are no accurate records of the character of these early flocks, but a consideration of the flocks of America in general is convincing evidence that these early Ohio sheep were very inferior to our present standards. The colonists of the East had depended almost entirely on England for their supply of woolsens. England had carefully guarded her export trade in cloth and as a consequence the sheep industry in America was in a demoralized condition. Of all the domestic animals, sheep had probably been the least improved by the colonists.

The early flocks for the first fifty years were kept exclusively for wool. The forests abounded in choice game and wool was so extremely valuable, that the early colonists were forcibly impressed with the idea that sheep should be kept to a ripe old age for the sake of the fleece alone. In fact an Athens County minister in 1820 preached a sermon on the sacrilege of butchering a sheep. In 1818, Faux, an English traveller complained that it was absolutely impossible to secure good mutton in America.

The wolves which roamed the forest and plain were one of the most serious menaces to the flocks of the pioneer

shepherd. In 1806, Thomas Ashe, an English traveller wrote "the best land lay to the West of Chillicothe. It is fitted to an incredible degree for all purposes of agriculture and grazing stock of every kind except sheep, which could not be kept from the panthers and wolves which were everywhere in great numbers. To annihilate this nuisance a premium is offered for every panther skin." In 1807 Seth Adams lost 35 head of valuable Merinos at his farm in Muskingum County. As late as 1820 Wells and Dickinson had trouble with wolves while driving their flocks overland from Stark County to Steubenville. In 1857 Van Wert County reported that marauding wolves retarded the growth of the woolen industry. All of this is evidence to show how the wolves were a factor in the management of the early flocks.

The dependence of the frontier family on its little flock of sheep attracted the attention of the state legislature and a bill was passed "allowing each person with a family to hold twelve sheep, also the wool and all the yarn and cloth exempt from all attachments, distresses or sales for debt or damage."

The handful of coarse wooled sheep was absolutely necessary to provide for the settler and his family. While it is true that up until 1812 practically all the finer goods, especially the broadcloths were made in England, the expense of transporting this material into the Ohio country made its cost prohibitive. Furthermore this highclass material was not fitted to the pioneer life in the wilderness.

The major portion of the clothing worn by all classes of people from the wealthiest to the poorest was known as "home-spun," which was made by the female members of the family. Every household was equipped with hand cards with which to work the wool into light rolls about three-fourths of an inch in diameter and about one yard long; there was also the spinning wheel, with which to spin the thread, and ability to dexteriously use these implements was one of the cardinal virtues of the pioneer housewife and her daughters.

Introduction of the Merino.

Beginning in 1801 the United States, especially the Eastern coast, became greatly interested in the production of fine wool. Spain realized her control on the fine wool market of the world and carefully guarded her flocks of Merinos against exportation, prizing them as a source of national wealth and revenue. However, in 1801, a few of these valued sheep were gotten out of their native land by Dupont de Nemours and Seth Adams of Massachusetts. These specimens of the breed were fairly well received into America, and as the interest in their development increased, additional importations on a small scale were annually made by other parties.

In the meantime in America the price for full-blood Merino wool was rapidly rising. Factories for making broad-cloth from this wool were established in the East. A few months later the unfriendliness of France and England, the Embargo and Non-intercourse acts served to cut off the supply of wools from abroad, and America was suddenly plunged into the production of wool and its manufacture into cloth — industries of which the American people knew practically nothing.

In 1810 the Napoleonic Wars worked wonders for the American fine wool business. The Spanish Government feared that their flocks would be slaughtered by the French, and being sorely pressed for funds permitted the sale of Merino sheep. Most fortunately for the American farmer, William Jarvis, the American consul, appreciated the situation, and immediately made arrangements to forward these highly-prized sheep to America. From September 1, 1810 until August 31, 1811, there are records of 17,693 Merinos being landed on our coast while 5,924 were killed in passage.

The rise in price of Merinos was phenomenal. Rams that sold in 1807 for \$100 were valued in 1810 at \$1000 to \$1500. But the immense supply soon reduced the price and by 1811 we find one importer lamenting that his cargo had been detained in Lisbon for six months and as a consequence a ram that would have brought \$1500 sold for \$350.

These radical changes in the industry were all felt by the Ohio sheep breeders. In 1807 Seth Adams moved from Massachusetts to Dresden in Muskingum County, bringing with him some 35 to 40 purebred Merinos, the descendants of his original importation. The first attempt to breed purebred stock in Ohio resulted in partial failure as wolves destroyed some of the best specimens of the flock. Mr. Adams then moved to Zanesville, where he served as agent for Consul Jarvis, disposing of several hundred Merino rams throughout Ohio and Kentucky.

It was a simple case of Eastern Ohio developing just as the Merino was brought into the borders of the Buckeye state, and both enjoyed a phenomenal growth. The first purebred ewe lamb dropped in Ohio sold for

\$500. While the first pair of Merinos was sold by Adams to a purchaser in Kentucky for \$1500. In the Zanesville Express of June 30, 1814, Dr. Evans of Moxahala Mills advertised that he had Merino rams for rent. Ohio was receiving her introduction to high class life stock. And even though the numbers of purebred animals were small, still they exerted a mighty influence on the flocks of the early day.

The Merino did more than simply improve the quality of fleece, for it made possible the manufacture of broadcloth in America. Broadcloth was then the popular material from which all the

coming to this country. All of which tends to show the utter helplessness of the United States on the mother land for clothing material.

Prior to 1812 the carding and fulling in Ohio had all been done by hand; but about 1813 water power was first used in the carding and fulling processes. In the Zanesville Express of June 7, 1813 appears a notice that a power card would be put in operation in that town at once, and those coming from a distance would be attended without delay. A few weeks later notice is given that a fulling mill would be put into operation at Springfield



Two winning pens of Shropshire lambs of H. L. Wardwell at the Syracuse Fair. Shepherd Dan Taylor kneeling.

better grades of garments were made. The common wool of the ordinary native sheep would not take the blue dye, and as a consequence the broadcloth industry waited until the Merino came to America.

So completely had England monopolized the woolen business that the United States could not boast of a single woolen mill until 1788, and by 1806 there were not over six mills in America. Moreover the United States did not have the machinery nor the workmen that could supervise the construction of the necessary machines. England realized this, and as trouble with America seemed inevitable they prohibited woolen mill builders from

Mills by the following September, and "the best work on this side of the mountains will be done." These first applications of power in wool-working were mostly for custom purposes, and were probably the only factories of their kind on "this side of the mountains."

In 1811 William Cooper Howells, the grandfather of William Dean Howells, succeeded in escaping from England, came to America and began the work of supervising the construction of woolen mills. The crude machinery was built by carpenters and blacksmiths who worked under the direction of Howells. In June, 1813, Joseph Steer, a Quaker who resided on Short

Creek in Jefferson County, secured the services of Howells, and the first woolen mill in Ohio was put in operation. The following year Howells constructed a woolen mill for Samuel and Jonathan Hunt at Mt. Pleasant. This mill was operated by an old blind horse, rather than by water power. The year following another mill was erected in the same county, and others quickly followed, for according to Howells "the manufacture of wool was the most promising and profitable business in America."

The master stroke that put Ohio on the early sheep maps was struck by Bezeleel Wells and W. R. Dickinson of Steubenville. Each of which in 1814 established a large flock of Merinos, containing the choicest blood and some of the finest specimens in America. In addition to the flocks kept by these men, a large woolen factory was operated by them at Steubenville. This created a market for the Merino wool of the early farmer at prices that were very remunerative. For example in 1814 full-blood Merino wool brought \$2.75 per pound, half-blood \$1.35, and common wool 50 to 60 cents, at the Steubenville factory.

These extremely high prices stimulated the purebred Merino business to an unusual degree. Large flocks were driven from the Eastern states, and the Ohio Valley, especially about Steubenville became the wool center of the Western country. The flocks of Wells and Dickinson continued to increase until by 1825 they numbered some 4000 head each. Mr. Wells purchased several thousand acres of land on Sipple Creek in Stark County and every spring his flocks were driven to these western pastures, and then returned to Steubenville in the fall. While making the journey the flocks

were protected by shepherds who rode in ox-carts. At night the sheep were guarded from the prowling wolves by the blasts of large horns which the shepherds carried. Financial reverses in 1829 necessitated the dispersal sale of the Wells and Dickinson flocks. In comment the Niles Register lamented that such an excellent flock should be dispersed, but in reality it was a great boon to the farmers of the Middle West. Sheep were selling at a low figure and hundreds of farms were stocked with the choice blood of these heavy fleeced flocks.

In the meantime the domestic and custom woolen business was spreading throughout the Western Reserve and the central portion of Ohio. In 1825 Wm. McLaughlin took over the carding works two miles from Ravenna, and promised that "children would receive their turn and be treated the same as grown folks." A frame woolen mill was built in Salem, Columbiana County, and the first steam engine in that vicinity was hauled from Pittsburgh to operate the mill. In 1823 carding was advertised at Meeker's Mills, 2½ miles south of Delaware. The price of carding at this point was 6¼ cents per pound with one pound of grease to every 10 pounds of wool. In 1823 Potter Wright opened a shop at Worthington for building machinery for cotton and woolen mills.

Up until about 1832 when the canals were opened the farmers of Ohio could market but few farm products at a markets; flour and hogs could be shipped down the river to the Southern markets; cattle and hogs could be driven East, while wool, feathers, beeswax, hides, linen and cloth were a few of the commodities that could be hauled overland at a profit. According to Charles Hammond, a Belmont County

farmer, it was more profitable to raise wool than any other crop, and by actual experiment he had found that there was more money realized from 100 sheep with wool worth 60 cents per pound than from 100 acres of corn, wheat and oats, with labor furnished free.

After the opening of the Ohio canal in 1832 there was a means of marketing the pork and flour from the Central part of Ohio. This stimulated the growing of these crops on a tremendous scale. A little later the Miami and Wabash canals opened the Western part of Ohio and Indiana. Just as the eastern part of Ohio was developed when there was no means of marketing these bulky products, the western part was really opened by the canals which offered a market for the same bulky commodities. Added to this was the advantage which the distant counties offered for the production of corn and the grazing of stock. Consequently sheep never became popular in the so-called corn belt section of Ohio, even at an early day. The Ohio Canal offered transportation facilities for the large crops of wheat grown in Wayne, Stark and neighboring counties, and by 1855 there were only two states in the Union which surpassed these ridge counties of Ohio in total production

of wheat. Fine wool production seemed to adapt itself to the raising of wheat, and sheep maintained there standing in the northern Muskingum Valley.

It is interesting to note that in the hill counties of Southeastern Ohio sheep were never as popular as farther north in the counties of Belmont, Guernsey, and Jefferson. The probable cause of this is the fact that the southern counties were great mineral producing counties, and in addition produced thousands of thin cattle which were driven over into the Scioto Valley to be fattened and then taken overland to the eastern markets.

The production of fine wool continued to occupy the attention of Ohio sheep men until about 1850, when the first railroads were constructed in Ohio. This diverted the attention of sheepmen near the cities to the Southdown, Leicester and Cotswold, the three popular mutton breeds of that day.

Eastern Ohio was perhaps no better for fine-wool production than many other sections of the country. But it was being settled just at the time, when the Merino sheep was making history for himself. In addition there were a few good business men who took an active interest in the sheep business and promoted it on a big scale.



POSITION OF MILKING SHORTHORNS IN AMERICA

Characteristics of the Dual Purpose Animals and Breeding

R. M. DODINGTON, The Tannenbaum Farm, Willoughby, Ohio

SOME three generations ago in England, in the counties of Cumberland, Westmoreland and Lancashire, although up to recent years none of these cattle were entered in the herdbooks, carefully selected cows and bulls of best milking strains and best milking types were intermated until the dual purpose cow was created. The other breeds

by the hand and hanging square as bellropes, a soft mosslike hide loose and settled on fatty bases, that alone can give that exquisite touch, so pleasant to them who know how a cow's hide should feel in robust health and of high quality, the more abundant the hair the better.

The thickness of the hide should be



Side view of James J. Hill's Milking Shorthorn cow.

could not cope with them in England for producing milk and beef.

The chief characteristics of a dual purpose Shorthorn are a breedy, rather short head, slender neck, light shoulders, developed chine, wide sprung, deep ribs, tolerably strong loin, wide hips, well spread rumps, rather light flanks, light thighs, pronounced escutcheon, fine bone in legs, not very wide brisket. Square full sized udders, teats long enough to be manipulated

moderate, neither thin as brown paper nor as thick as a bullock. With the sire he must show a more masculine appearance and be strong in bone in proportion as the bull is half the herd, being accountable for fifty per cent of progeny; it almost appears unnecessary to insist, that he be of a line of unbeatable ancestors.

It is a well established truth that all things in nature are governed by a law. It is necessary here to show that the

laws governing the production of milk and flesh or fat in animal bodies are not the same but radically different. The dual purpose cow is an artificial not a natural product or creation and her excellence and attainments can be maintained only by the same intelligent modifications of her environment that have given rise to these improved qualities.

Remove the artificial condition that



Milking Shorthorn cow recently imported by James J. Hill, St. Paul, Minn. The side view of this cow is on opposite page.

has given the dual purpose cow her superiority, surround her with nature's conditions of pasture and feed, treat her offspring as we would a steer and very soon we will have a dairy animal running to beef. It is also more difficult to prevent a combined beef and milk-bred heifer from deteriorating under this treatment than one of pronounced dairy type.

I have had cows weighing from 1200 to 1400 pounds, which yield 12,000 pounds of milk a year, raising steers, which at 12 months old weighed 900 pounds. On no account however would I recommend getting heifers intended for the dairy to this weight.

In America the meat supply is no longer equal to the consumption owing to the rapid increase in population, so it is necessary for every owner of cattle to meet the increased demand for milk and beef, and if a class of cattle can be secured which can produce from 6000 to 10,000 pounds of milk in a year and at the end of her career make one of the best carcasses of beef, she has filled the bill.

Shorthorn breeders are well assured of the two-fold quality of their cattle, and this dual capacity for beef and milk production is becoming well recognized by farmers everywhere. That beef production is the stronger and more important quality of the breed is largely due to the fact that this capacity has received more constant and intelligent development by the mass of Shorthorn breeders. This statement is not intended as any reflection on the minority who have really tried to develop the dairy qualities of their breeds. These enterprising breeders believe that the capacity for great milk production, like that of beef is the result of inheritance; hence they have bred their cattle to accomplish this result.

In addition to intelligent breeding, these men have used the utmost care, supplying food calculated to aid in milk production. Unquestionably many cows of wonderful milk production have been owned by men who gave attention only to the development of beef, and so their influence as dairy animals was lost to the breed through the lack of accurate records.

FIFTH ANNUAL OHIO STATE HORSE SHOW

Eighteen Events with 125 Entries and \$400 in Cups Draws 3000 People

CLIFFORD T. CONKLIN, '16, Ohio State University

WITH 130 entries, eighteen events and twenty prizes in cups and trophies valued at \$200, the fifth annual Ohio State Horse Show, staged by the Saddle and Sirloin Club on Ohio Field, May 6, drew a crowd of 3000 people who sat for five hours applauding the riders and drivers of the 60 pleasure horses as they flashed about on the turf. Each event was full of spice and at no

tion handily placed him above Vanity Girl shown by Mrs. J. W. Kauffman of Columbus.

Mt. Sterling Chief, owned by the Maplehurst Farms of Washington C. H. was given the premier position in the gaited stallion class with Popular King shown by H. W. Brown of Columbus a close second. The superior style coupled with consistency and regularity



Miss Jessie Merkle driving Debutant and Connoisseur, the winning carriage pair.

time could the judge pick the winners by glancing hastily over the exhibition of equine symmetry. Upon a solid turf and with the sun shining against their sleek sides the favorites of the saddle horse world responded to the slightest touch of the riders and wheeled about at every rush to attain the head of the rings.

In the single heavy harness class, Drum Major, shown by the Mitchell Riding Academy carried away the blue. His nicely turned form and snappy ac-

tion of gaits gave the Washington C. H. horse the coveted blue.

In the three-gaited class, the old favorite Connoisseur owned by Miss Jessie Merkle won the third consecutive cup in this event with his former stable mate Drum Major, a Mitchell entry, standing second. Notwithstanding his age the Merkle mount still retains his excellent form and show ring carriage.

In the trotting mare and gelding class bursts of speed characterized the entries. The classy grey mare, Highland

Lassie, owned by Miss Jessie Merkle for the first time tasted defeat at the Ohio show when F. P. Mitchell drove General Fungston, a straight going chestnut gelding to victory.

The sensation of the show was the performance of Rambler, a chestnut gelding owned by Mrs. Louis F. Kiese-wetter of Columbus, who handily won the three-gaited class for horses over 15 hands 2 inches and later won the championship of the show. Rambler is

Connoisseur ridden by Miss Merkle proved to be superior in the ladies' mounts again defeating Drum Major ridden by Miss Robbins. Connoisseur and Debutant driven by Miss Merkle made a favorable impression with the crowd and judges and were declared winners in the carriage pair class. Debutant driven by Miss Merkle in the ladies' single driver class carried away the blue. Miss Merkle also proved herself to be the premier lady rider of the



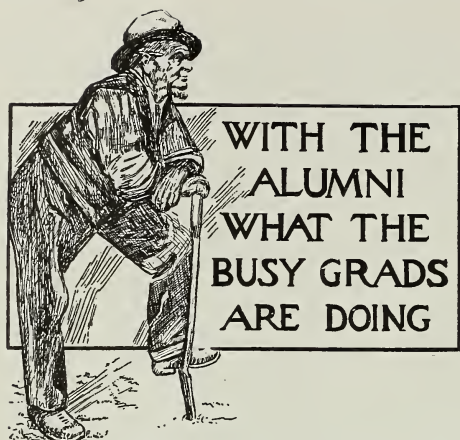
The line-up in the three-gaited class: from right to left, On Parade with H. W. Brown up; Prince, Don Robbins up; General Lee, Lot H. Brown up; Trooper, H. W. Jeffries up.

a handsome specimen of the long-tailed, three-gaited type with an easy canter and a trot that is hard to improve for speed, balance and squareness of going. On Parade, H. W. Brown's champion of last year stood second.

The Manager, with Don Robbins up, was in superior form and carried away the cup in the five-gaited and the combination class. The big chestnut gelding possessed in addition to his typey form, trueness and versality of performance that far outshone his rivals.

afternoon with Miss Robbins second, Miss Pauline Yates third, and Miss Alt-mire fourth. Miss Merkle won her events through her ability to manage her horse in all gaits while some of her competitors created a favorable impression with the spectators because of riding exclusively at canter.

Charles Elmer Railley of Lexington, Ky., who placed the rings of light horses at the Panama-Pacific Exposition at San Francisco last year was the judge of the show.



Louis L. Heller, '12, in charge of the government wool demonstrating car which toured Montana, and Wyoming last summer recently gave a discussion on sheep, at the third demonstration in practical livestock judging held recently under the auspices of the Saddle and Sirloin Club of the Union Stock Yards at Chicago. Mr. Heller, an expert on sheep, has been in the employ of the bureau of animal industry, U. S. Department of Agriculture, Washington, D. C., for the past four years as assistant to Prof. F. R. Marshall, who has charge of the sheep investigation work.

Mr. Heller is regarded as one of the best informed men in the country on the breeding, feeding and management of flocks. He is the author of several books relating to flock husbandry and his studies in the Boston Textile Schools have given him an intimate acquaintance with wool fabrics and the spinning industry. Mr. Heller aided in the organization of the boys' lamb clubs in the southern states.

Just recently, Mr. Heller left the service of the Department of Agriculture to take up sheep demonstration work for the National Wool Warehouse and Storage Company.

James H. Allen, '14, is operating his father's farm near Kenton, Ohio.

Jesse L. Barnhart, '14, is teaching agriculture in the high school at New Philadelphia, O.

Henry C. Baumgardner, '14, is assistant in the department of animal husbandry at the University of Illinois.

E. S. Bird, '14, is assistant county agent at Independence, Ky.

George E. Simmons, '09, is professor of agronomy at the University of Maine at Orono.

R. E. Hundertmark, '09, is an instructor in the department of dairying at the Washington Agricultural College, Pullman.

E. W. Bennage, '09, is chemist for the Jarecki Chemical Company, Sandusky, Ohio.

H. E. Allen, '09, is professor of animal husbandry at Purdue University, Lafayette, Indiana.

W. L. Slate, '09, is professor of agronomy at the Connecticut Agricultural College, Storrs, Conn.

Stanley S. Hart, '09, is farming at Campbellstown, Ohio.

Lewis D. Risser, '09, is managing a general farm at Pandora, Ohio.

V. L. Wildermuth, '09, is an entomologist for the U. S. Department of Agriculture at Tempi, Arizona.

Ernest Clawson, '09, is a farmer at Okeana, Ohio.

B. L. Thompson, '09, is associate professor of animal husbandry, South Dakota Agricultural College at Brookings.

Burt Miskimen, '08, is farming near Newcomerstown, Ohio.

S. C. Hartman, '08, is a farmer and stock raiser at North Fairfield, Ohio.

David P. Snodgrass, '08, is managing a farm at Cannonsburg, Pa.

C. W. Hengst, '08, is operating a farm at Lancaster, Ohio.

C. S. Woodard, '08, is teaching agriculture in the high school at Langston, Oklahoma.

Edwin A. Risser, '07, is farming at Pandora, Ohio.

James L. Edmunds, '08, is professor of animal husbandry at the University of Illinois at Urbana.

R. Claude Wright, '08, is assistant soil bacteriologist for the U. S. Department of Agriculture, Washington, D. C.

Dillon S. Myer, '14, is instructor in the department of field crops at the Kentucky Agricultural College, Lexington.

H. W. Nysonger, '14, is teaching agriculture in the high school at Bradford, Ohio.

Francis E. Piper, '14, is operating a farm near Ashtabula, Ohio.

Everett P. Reed, '14, is assistant agronomist at the New York Agricultural Experiment Station, Geneva.

T. R. Shively, '14, is doing soil survey work for the state of Illinois with headquarters at Carmi, Ill.

John A. Slipher, '14, is an instructor in the department of agronomy at Purdue University, LaFayette, Indiana.

Ralph Q. Smith, '14, is following general and livestock farming on a farm near New Carlisle, Ohio.

W. G. Smith, '14, is farming at Spiceland, Indiana.

C. H. Stokes, '14, is running a general farm at Fremont, Ohio.

Frank B. Tracy, '14, is in the fruit growing business at Euclid, Ohio.

C. R. Stoner, '14, is operating a general farm near New Berlin, Ohio.

A. A. Turner, '14, is teaching agriculture at the Bluefield Institute, Bluefield, Virginia.

Jonathan B. Wagy, '14, is farming at Summit Station, Ohio.

B. A. Williams, '14, is farming at Painesville, Ohio.

George F. Story, '10, is an instructor in the department of animal husbandry at the Massachusetts Agricultural College, Amherst.

Glenn Roberts, '14, is running a 200-acre farm near Findlay, Ohio.

M. J. Doherty, '13, is teaching agriculture in the high school at Mt. Vernon, Ohio.

F. C. Marshall, '13, is farming at Beaverdam, Ohio.

Joseph W. Ray, '13, is teaching high school agriculture at Greensburg, Ind.

Ernest Oliver, '13, is running a dairy farm at Versailles, Ohio.

Perry Van Ewing, '11, is professor of animal husbandry at the Georgia Agricultural Experiment Station.

Harry Linebaugh, '11, is farming at Grove City, Ohio.

L. H. Wright, '11, is running a general farm at New Vienna, Ohio.

H. A. Harsh, '11, is farming at Amlin, Ohio.

Philip Luginbill, '10, is entomologist for the U. S. Department of Agriculture with headquarters at Columbia, South Carolina.

H. R. Watt, '10, is farming near South Columbus.

Wilbur J. Hendrix, '10, is farming near Dayton, Ohio.

E. F. Rinehart, '10, is professor of animal husbandry at the Idaho State Agricultural College, Boise, Idaho.

George W. Hood, '10, is professor of horticulture at the University of Nebraska.

L. L. Mowls, '10, is farming at Bayard, Ohio.

Richard Faxon, '10, is assistant state orchard inspector for Ohio with headquarters at Columbus.

G. C. Portes, '10, is operating a general farm near Newcomerstown, Ohio.

Lesley J. White, '10, is managing an orchard at Mt. Gilead, Ohio.

L. M. Oyler, '10, is operating a general farm at Okeana, Ohio.

James F. Walker, '14, is teaching agriculture in the Westtown School, Westtown, Pa.

W. H. Darst, '10, is assistant professor of agronomy at the Pennsylvania State College of Agriculture, State College, Pa.

George E. Boltz, '10, is working in the department of agricultural chemistry at the Ohio Agricultural Experiment Station at Wooster.

W. H. Dilatush, '09, is managing a farm at Marked Tree, Arkansas.

M. D. Moore, '09, is operating a dairy farm at Salem, Ohio.

H. J. Ridge, '13, is teaching agriculture at Bluffton College, Bluffton, Ohio.

Lewis L. Work, '13, is a buttermaker at Springfield, Ohio.

F. G. Charles, '13, is supervisor of the Boys' Refuge Farm at Glendale, Ohio.

Raymond Jaeger, '13, is running a dairy farm at Euclid, Ohio.

Grover C. Woodin, '13, is instructor in entomology at the Michigan Agricultural College and assistant state entomologist for Michigan with headquarters at Lansing.

Clayton L. Long, '13, is in the extension department of the University of New Hampshire, at Durham.

Earl O. Blair, '13, is a landscape architect in Chicago.

W. E. McComas, '13, is teaching agriculture in the high school at Dodge Center, Minn.

O. Clement Croy, '13, is teaching high school agriculture at Medford, Minn.

Lee W. Smith, '13, is a traveling salesman for a lumber company at Cleveland.

Lewis H. Fudge, '13, is teaching agriculture in the high school at Stephens, Minn.

F. J. Salter, '13, is an instructor in the department of agricultural chemistry, Ohio State University.

E. O. Williams, '13, is farming at Mt. Victory, Ohio.

Edwin G. Hibbs, '14, is instructor in agriculture at Albert Lee, Minnesota.

B. A. Schnell, '13, is in county Y. M. C. A. work in Union County with headquarters at Marysville.

Clell Solether, '13, is operating a general farm at Jerry City, Ohio.

Herbert E. Otting, '13, has charge of the laboratories at the John Wildi Milk Evaporating Company, Columbus.

Herbert A. Wise, '13, is dairy bacteriologist for the Polk Sanitary Milk Company at Indianapolis, Indiana.

Wallace E. Hanger, '11, has charge of the farm crops division of the extension department of Ohio State University.

Earl A. Baumiller, '14, is farming at Nutwood, Ohio.

Ray C. Bish, '14, is milk inspector for the City of Dayton with headquarters at Dayton.

Joseph E. Boman, '14, is teaching agriculture in the high school at Delphos, Ohio.

Lewis H. Burgwald, '14, has charge of the dairy department on the Moraine Farms, at Dayton.

Harrison Davis, '14, is farming at West Milton, Ohio.

R. R. Buchanan, '14, is teaching agriculture at Brown's Valley, Minnesota.

Ray M. Dibble, '14, is operating a farm near Leipsic, Ohio.

Leland DePriest, '14, is horticulturist at the Moraine Farms at Dayton.

V. B. Ditrick, '14, is carrying on general farming near Williamsport, Ohio.

L. W. Durrell, '14, is operating a stone quarry at Mackinac City, Michigan.

Paul Geiger, '14, is farming near Hebron, Ohio.

Joseph C. Hale, '14, is chemist and bacteriologist for the Akron Pure Milk Company at Akron.

Maurice D. Helsner, '14, is assistant in the department of animal husbandry, Arkansas State College of Agriculture, Jonesboro.



MAY NEWS NOTES

AG BANQUET.

"Real accomplishments and satisfactions are the two things that make up the category of life," said Dr. Liberty Hyde Bailey, lecturer, philosopher, poet, naturalist and author, who spoke Saturday night, April 29 at the fourth annual banquet of the College of Agriculture in the gymnasium. "The right of enjoyment of life belongs to everyone, but the real accomplishments, the spiritual and intellectual things of life are what constitute living and making it worth while.

"Students interest me because they have a program all of their own. Most of them are not under home influence and their mode of living is regulated by their own ideas. Nevertheless, they stand for the homes of all parts of the country and not the factories or other institutions.

"The responsibility they represent is my reason for liking the farm folks. The farmer has upon his shoulders the responsibility of feeding the world; he is the agent of the people. The good in farming is reactionary, for the caring for a piece of land makes the farmer realize his usefulness. He realizes that the fertility and production of his land is a matter of public concern and interests all the people."

Dr. Bailey spoke of the organization

of farmers as being a necessary outgrowth of new farm life, yet secondary to the actual production of crops. He considered that the farmer should remember that his first duty was to raise crops and under no condition should he let organization take the place of good farming. He cited the fact that no factory or institution government was strong unless the principles comprising it are right; it must be governed from the heart out and not otherwise. He also placed a high valuation on the co-operation of women in the management of the farm, saying that it is their help that makes for the democratic home, the real foundation of democracy.

In concluding Dr. Bailey said "Character may develop out of farming as out of any other occupation. It depends on an individuals way of approaching work, the way he carries it through and the feeling of responsibility in the manner in which he handles it. I believe that the race for riches, the desire for glory and honor, are passing and the main purpose in life is tending toward excellency in one thing."

Dr. W. O. Thompson, Clark S. Wheeler of the extension department; Prof. Edna N. White, head of the department of home economics; Clifford T. Conklin, senior in the College of

Agriculture, and Helen Mouguey, senior in the home economics department, responded with toasts. Dean Alfred Vivian acted as toastmaster. Four hundred attended the banquet.

The class in dairy cattle judging under Schuyler M. Salisbury will take a three day judging trip through the northeastern part of Ohio for the week ending May 20. Included in the trip will be the Anna Deane farms at Barberton, the Maplecrest farms at East Claridon, the farm of Peter Small at Chesterland and several farms near Willoughby. From this class of 29 most of whom are juniors, will be picked a team of three to represent Ohio State at the National Dairy Show judging contest at Springfield, Mass., next October.

During the past year two classes have been conducted in rural leadership, one by the Y. M. C. A., and the other by the Y. W. C. A. The purpose of these classes is to train men and women to do service in rural life work and to train leaders for bettering the social and economic conditions of the country. The men's class the first semester was in charge of Prof. Paul L. Vogt of the department of rural economics while during the second semester lectures were given by different men who are doing rural service work. Included in the list of speakers were M. C. Thomas, county agent of Marion County, C. S. Cole, pastor at Ashley, of Delaware County, and T. B. Lanham, secretary of the state Y. M. C. A. A committee has been appointed to formulate plans of having the students co-operate with the Y. M. C. A. at their homes this summer in extending this work.

The girls' class was organized this semester and has been addressed by

students and members of the faculty on ways of organizing clubs in home economics. During the summer it is planned to have the girls conduct eight week clubs in home economics in their home communities.

By producing 16,389.3 pounds of milk and 852.72 pounds of fat in 365 days in a test began at four years five months of age the Jersey cow Successful Queen not only breaks the world's fat record for the breed at this age, but also the milk record. This 1916 record, however, does not mark the Queen's entry in the list of test cows as at the age of three years and three months she made the Register of Merit with a production of 13,088.4 pounds of milk and 682.4 pounds of fat.

Successful Queen is by Torono Second of Hood Farm and out of Torment's Trudie Second. She was bred by J. C. Greene of East Bethel, Vt., and is now owned by the Hood Farm, Lowell, Mass.

Gurdon A. Dimoc, of Kalamazoo, Mich., one of the proprietors of the Maplecrest farms and a director of the Holstein-Friesian Association of America, on which he did untiring service died recently. While owner of Maplecrest farms at East Claridon, Ohio, a number of world's records were broken by cows in his herd among which was Banostine Belle DeKol, who made 1058 pounds of butterfat in 365 days.

Mr. Dimoc was always a lover of livestock and spent much of his time in training horses. He had a quiet and unassuming personality but yet he had a forceful character. Though he had no children of his own he always took an interest in them and during his life he sent several young men and women through college. Many successful business men owe their start to him.



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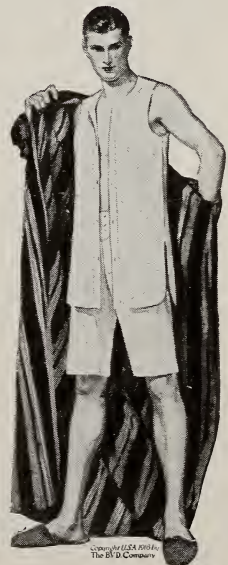


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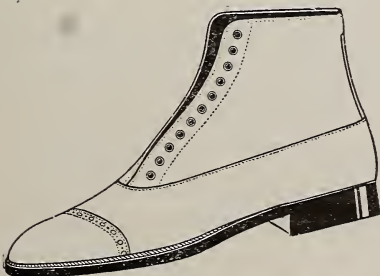
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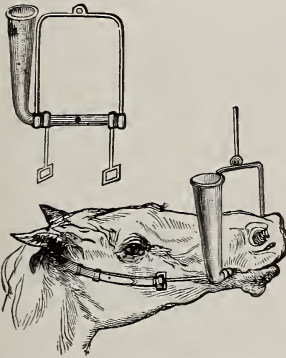
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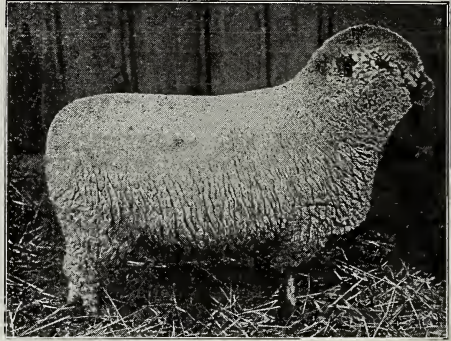
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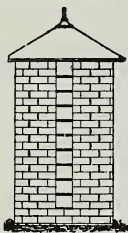
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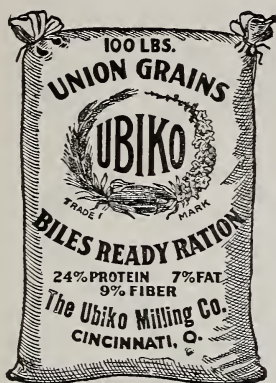
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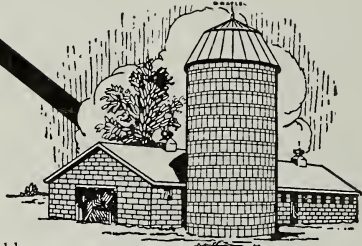
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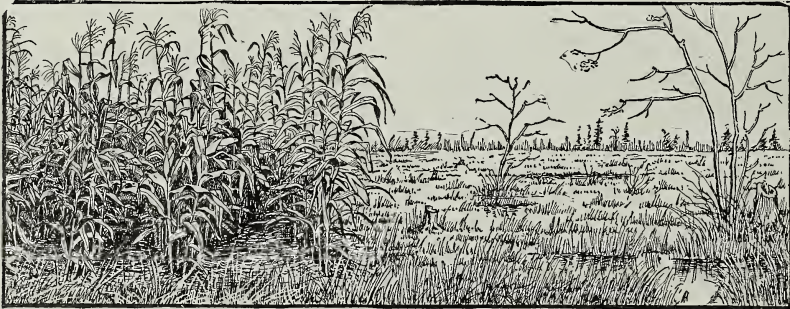


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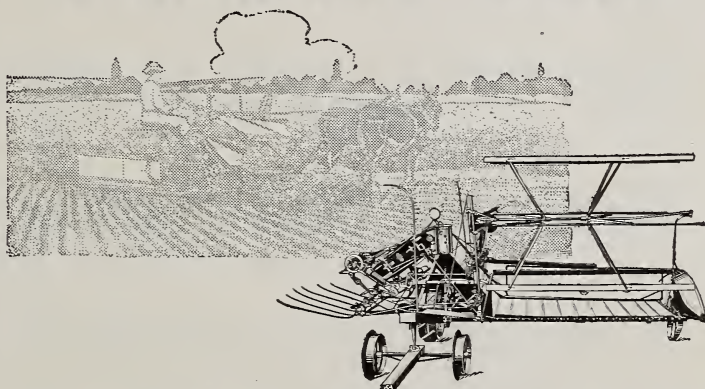
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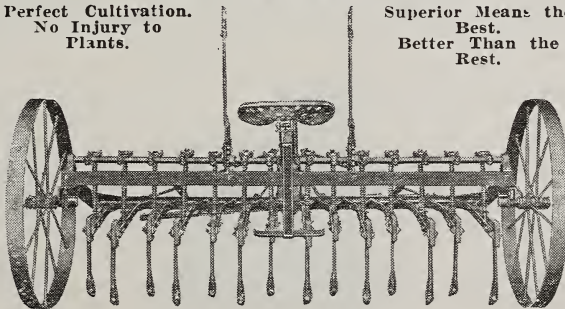
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4 H.P. Cushman Weighs Only 190 lbs. 8 H.P. 2 Cylinder Only 320 lbs.

These are the only light-weight farm engines. High speed and throttle governor, with perfect balance, give smooth, continuous flow of power and uniform speed instead of violent, irregular explosions and fast and slow speeds of old-style engines. This explains why Cushman engines are so light in weight, yet more steady-running and more durable than engines weighing four or five times as much.

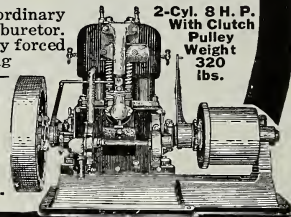
Only All-Purpose Farm Engines

Besides doing all regular jobs, Cushman Engines may be used for so many jobs heavy engines cannot do. 4-H. P. is original binder engine, also used on corn binders and potato diggers. 8 H. P. used on hay balers, corn pickers, etc. 15 H. P. weighs 780 lbs.; 20 H. P. only 1200 lbs., for heavy duty.

Cushman equipment is much superior to that of ordinary farm engines. Friction Clutch Pulley and Schebler Carburetor. 20 H. P. has gear-driven high tension Magneto. Cooled by forced water circulating system, permitting all-day run. Moving parts enclosed and run in bath of oil. Run at any speed—speed changed while running. If you want a real farm engine, to run without trouble and do all your work, you need the Cushman. Book free.

Cushman Engines are not cheap, but they are cheap in the long run.

CUSHMAN MOTOR WORKS
926 No. 21st Street, Lincoln, Neb.

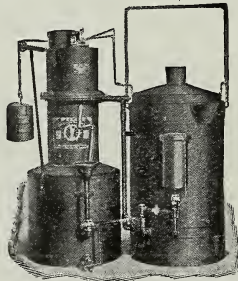


GAS FOR LIGHTING AND COOKING PILOT LIGHTING PLANTS

SUPPLY A CITY CONVENIENCE TO COUNTRY HOMES

A simple, automatic gas machine, producing the most beautiful light in the world. Cheaper than kerosene. Installed in cellar or outside the house.

**Absolutely Safe
Always Ready**



Handsome ornamental chandeliers.

Barns lighted by pull of a chain—no matches needed.

Clean and cheap for cooking.

**A Cool Kitchen
in Summer.**

Used today in more than 250,00 Country Homes. Pilot Lighting Plants installed complete, ready for use and guaranteed. Write for estimate.

OXWELD ACETYLENE COMPANY

NEWARK, N. J.

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LOS ANGELES.

Please mention THE AGRICULTURAL STUDENT when writing advertisers.

USE



FOR

The Treatment and Prevention of Hog Cholera

READ THE FOLLOWING UNSOLICITED LETTER—IT TELLS
THE WHOLE STORY

Seaford, Delaware, Jan. 19, 1916.

The Thiele Laboratories Co., Columbus, Ohio.

Gentlemen:—It has been the writer's intention for some time to write you, giving you a full report on the wonderful success we have had in using your "544" for the prevention, treatment, and let us make here the strong statement, proven by facts, cure of hog cholera.

As you are aware from our previous correspondence, we are among the largest swine breeders in the East. Four years ago we inoculated hog cholera into our herd by using a non-potent serum. Up to that time we had a perfectly clean plant, but were surrounded by cholera. During that year we lost one hundred and sixty-four, including boars, sows, shoats and little pigs. This called for quick action; something had to be done or go out of the business.

We then took up the double or serum-virus treatment. Our first treatment, or rather inoculation, proving about 75 per cent immunized hogs. We continued with this treatment till we began using your "544." Later results with this simultaneous treatment had proved about 75 per cent to the bad. Hogs treated died of cholera.

This year, with cholera all around us and hogs dying in hundreds, we had but fourteen cases. These were all pigs from four weeks to three months old, and we lost but four. We attribute both the fewness of cases and the recovery of ten sick to "544."

We note in your advertisements that you say "544" will cure hog cholera if taken in time, with proper treatment. This we think we can surely confirm, and gladly do so, from the above experience.

We herewith enclose you check to cover statement rendered, also thirty (30) dollars in addition, for which please send us at once six more bottles of "544." We wish to add that on receipt of this we will at once inoculate two hundred little pigs, ranging from three to eight weeks old. We also have fifteen more sows that will farrow within the next two months.

Awaiting your early reply, we beg to remain,

Very truly yours,

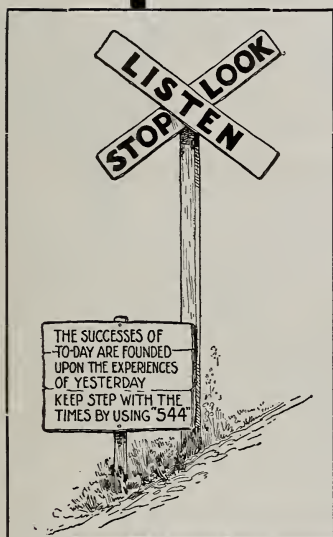
B. L. R./C

J. J. ROSS & SON.

If interested or further information is desired,
write for Free Booklet to

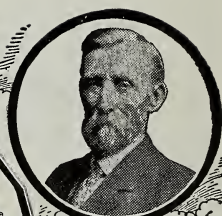
The Thiele Laboratories Co.

HARTMAN BLDG., COLUMBUS, OHIO

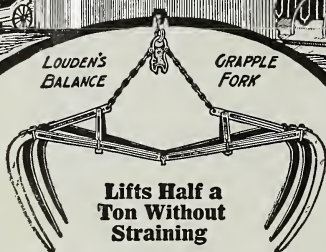
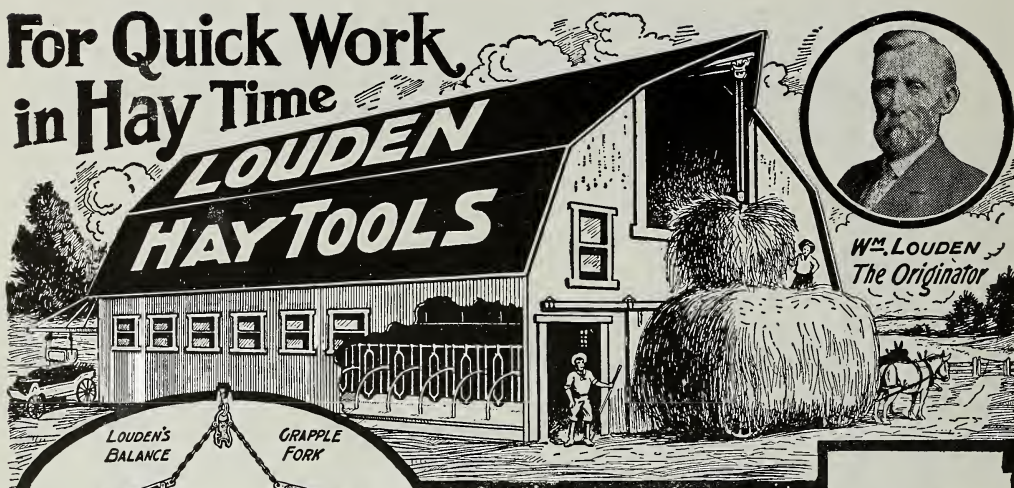


For Quick Work in Hay Time

LOUDEN HAY TOOLS

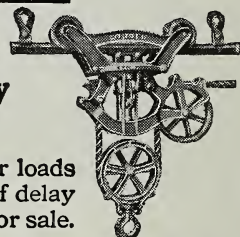


WM. LOUDEN
The Originator



LIFTS HALF A
TON WITHOUT
STRAINING

What's One-Third of Your Time in the Hay Field Worth to You?

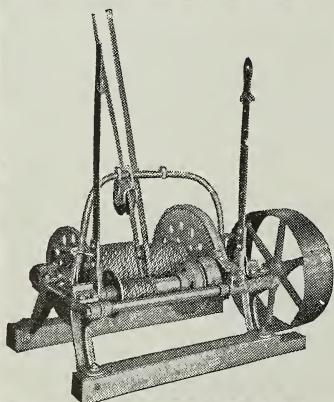


Louden Hay Tools will save it. Will enable you to move bigger loads easier and faster than in any other way—avoid the danger of delay which often lets the rain catch your hay down, spoiling it for use or sale.

Louden Balance Grapple Fork

Set the Louden Balance Grapple Fork across a load and it will take the entire width of an 8-foot rack at a single lift. Half a ton at a time will not strain it. You can put away the biggest load in five minutes. Moves straw, alfalfa, or clover as clean as timothy—grips it tight; no scattering or dribbling. What other hay fork will do this? Built of the finest steel, especially made for us. Light, strong, perfectly balanced, never fails.

Louden Hay Sling is the tool you want for heavy work in short forage. Its factory test is 3,000 pounds. Will handle anything in the way of roughage without waste. Nothing to beat it as a time and labor saver.



Louden Senior Hay Carrier

meets the needs of the hay grower for ordinary and for extra heavy work. Has a guaranteed continuous working capacity of 1500 pounds. Louden Swivel Frame prevents rope troubles; roller-bearing rope wheels make it easy to operate. Can be used for either end or center drive. You can pick up a load off the wagon from any angle—it never fails to register. Draws its load right up against the track, drags it over beams and puts it right where you want it every time. You can store tons more hay in the same space and in record time.

Louden Power Hoist Works with all the Louden Hay Tools. One man operates it from the load—takes the place of horse or team on the draft rope; saves you \$5 a day when used with a Louden Carrier Fork, or Sling. It's simple, smooth-running, powerful. Operates with steam, gasoline engine or electric motor. Will MAKE GOOD wherever hoisting power is needed.

Louden Hay Tools are dependable all times. They cost little; save time; save labor and they often save the crop. Write for our big, new, illustrated catalog on Louden Hay Unloading Tools. Sent free on request.

The Louden Line of Sanitary Barn Equipment Includes:

Litter Carriers	Feed Trucks	Garage Door Hangers	Cow Pens
Feed Carriers	Cow Stalls	Manger Divisions	Calf Pens
Milk Can Carriers	Water Troughs	Hay Barn Equipment	Bull Pens
Harness Carriers	Water Basins	Feed Racks	Hog Pens
Weather Vanes	Mangers	Power Hoists	Sheep Pens
Barn Door Hangers	Horse Stalls	Feed Boxes	Cupolas
Hay Carriers			Ventilators

The Louden Machinery Co.

6902 Broadway

(Established 1867)

Fairfield, Iowa

The Size of Your Cream Check

IS NOT CONTROLLED ENTIRELY BY THE PRICE

Paid You for Your Butter Fat

GETTING PAID FOR ALL OF YOUR FAT

Is What Counts Most.

WE GIVE EVERY "TENTH" IN BOTH WEIGHT AND TEST.

We Pay the Freight.

CO-OPERATION WITH US PAYS YOU

The Highest Possible Price.

SHIP THE NEXT CAN TO US—GET A BIGGER CHECK.

THE WEST JEFFERSON CREAMERY CO.



American Fence

AWARDED
PANAMA PACIFIC
GRAND PRIZE
INTERNATIONAL EXPOSITION

and Steel Fence Posts

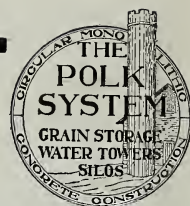
Big, full gauge wires—full weight—full length rolls woven with a mechanically hinged joint. Superior quality galvanizing—proof against hot sun, sleet and snow.

← American Steel Fence Posts, cheaper than wood and more durable. Last a lifetime. Hold fence secure against all conditions.

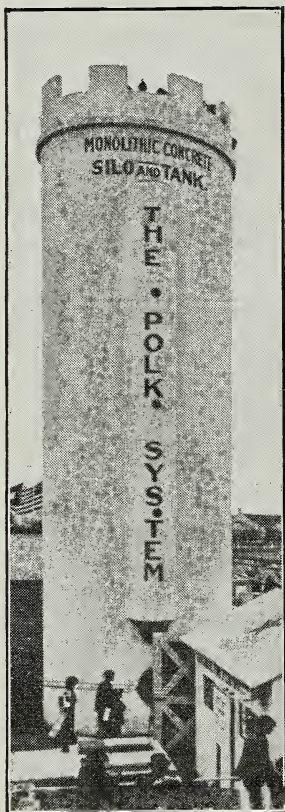
Sent Free Write for booklet on how to set posts and erect fence. Every farmer should have it.

Dealers Everywhere

AMERICAN STEEL & WIRE COMPANY
Chicago New York Pittsburgh Cleveland Denver



CAN YOU AFFORD NOT TO?



"They are not built of pieces
and they cannot go to pieces."

Are you hesitating about the expense of a POLK SYSTEM silo? Do you wonder whether you can afford one?

Let **us** ask a question or two. Can you afford to keep as few cattle as you are keeping on the acreage that you have to buy and pay taxes on? Can you afford to throw away 40% of the nutriment of your corn fields? Can you afford to keep on in the old wasteful way of handling the corn crop when other farmers around you are securing nearly twice as much return as you do?

A POLK SYSTEM silo will increase the return from your corn crop from 60% to 100%. It will enable you to keep nearly twice as many cattle on the same acreage.

A POLK SYSTEM silo is not an expense. It is an investment that yields from 50% to 80% every year as long as you live. And there is never a penny needed for upkeep.

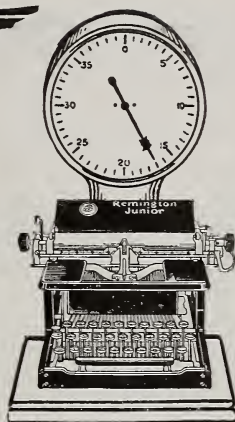
There ought to be a POLK SYSTEM SILO on your farm.

WRITE FOR FREE CATALOG

Polk Genung Polk Co., Fort Branch, Indiana

Seventeen Pounds of Satisfaction

DIRECT TO YOU
BY PARCEL POST



REMINGTON JUNIOR TYPEWRITER

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Built by the world-renowned Remington Typewriter Company, and carrying the regular Remington guarantee.

*A labor saver for the home and an educator for the children.
A work facilitator and thought accelerator for professional men.
A time saver and business safeguard for the farm and office.*

Say the word, and we will mail it to you on ten days' examination. Set it up and use it. If you decide not to keep it, send it back—that's all. If you decide to keep it, the price is \$50. Send us 10 monthly payments of \$5 each and the machine is yours.

MAIL THE COUPON TODAY

Remington Typewriter Company,
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Send me a Remington Junior Typewriter, price \$50, on free examination. It is understood that I may return the machine, if I choose, within ten days. If I decide to purchase it, I agree to pay for it in 10 monthly payments of \$5 each.

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Fits and Misfits in Greenhouses

OFFHAND, there are at least four major requirements that positively must be met to satisfy your idea of the greenhouse you want.

FIRST: It must be so designed that it will grow the flowers, vegetables, or fruits you want, so as to give the best results for the labor and coal expended.

SECOND: It must be so constructed that it will be free from those exasperating, recurrent, repair expenditures incident to many of the greenhouses you have heard of or know about.

THIRD: It must fit attractively on your grounds. Not just a greenhouse, but a

greenhouse designed for your particular location.

FOURTH: The price must be reasonable.

If we are right in assuming that these are your requirements, then we should like to take up with you the question of designing and building a greenhouse for you.

We may be able to do it entirely to your satisfaction by writing. But with our many offices in various parts of the country it makes it possible for our representatives to quickly keep appointments at a time and place to suit your convenience.

Our Glass Garden Booklet, you are most welcome to.

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TYPES OF PERCHERON AND BELGIAN STALLIONS AND MARES AT LAFAYETTE STOCK FARM.

We are the largest importers in America of Percheron and Belgian Stallions and Mares.

We have on hand at this time a grand lot of Stallions and Mares, in ages from three to six years old, with quality, bone and substance.

If you are in the market for a good stallion or mare—write us—or come and see us.

We sell on time if you want to buy that way—Terms to suit you.

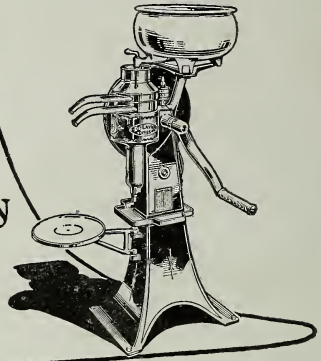
We guarantee our Stallions to be satisfactory, sure breeders, or you don't have to keep them.

Can arrange to get life insurance on the animal you buy, in a good responsible company, against death from any cause.

We are extensive breeders of pure bred Hereford Cattle and Hampshire swine. Young stock on hands at all times for sale.

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Clean Skimming
Easy Turning
Easy Washing
Small Repair Cost
Best Cream Quality
World's Highest
Awards



DE LAVAL

Stands on Its Record

FOR nearly forty years the De Laval Cream Separator has led in the cream separator field. It was the pioneer in 1878. It had a long start and has always held its lead. It has always led in every step of cream separator development and popularity, and more De Laval's are in use today than all other makes combined.

It has always been recognized as the closest skimming cream separator. That's the main reason why 98% of the world's creameries use it to the exclusion of all others.

Because of its clear skimming, ease of operation and wonderful durability, every De Laval user is a "booster" and the better its work is known in a neighborhood the more popular it becomes.

The better quality of cream it produces is attested by the fact that De Laval produced cream and butter have scored highest at every annual contest of the National Buttermakers' Association for twenty-four years and in every great representative contest for over thirty years. Last but not least, the De Laval was awarded the Grand Prize at San Francisco Exposition in 1915 as at every other great exposition since its invention.

**We will be glad to send one of our handsomely
printed and illustrated new catalogs to any farmer
or student interested in dairying, upon request.**

THE DE LAVAL SEPARATOR CO.

165 BROADWAY, NEW YORK

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